



Nova Scotia

ANNUAL REPORT

*for the fiscal year
ending March 31, 1985*

Department of
Lands and Forests



REPORT OF THE MINISTER OF LANDS AND FORESTS

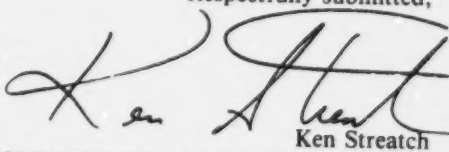
To His Honour

The Honourable Alan R. Abraham, C.D.
Lieutenant-Governor of Nova Scotia

May It Please Your Honour:

I have the honour to submit herewith the report of the Department
of Lands and Forests for the fiscal year ended March 31, 1985.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read 'Ken Streach', is written over a horizontal line. The signature is fluid and cursive.

Ken Streach

MINISTER OF LANDS AND FORESTS



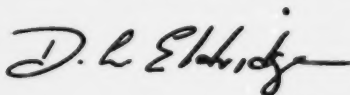
**REPORT OF THE
DEPARTMENT OF LANDS AND FORESTS**

The Honourable Ken Streach
Minister of Lands and Forests
Halifax, Nova Scotia

Sir:

I have the honour of presenting the Report of the Department of
Lands and Forests for the fiscal year ended March 31, 1985.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read 'D. L. Eldridge', with a stylized flourish at the end.

D.L. Eldridge
DEPUTY MINISTER



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MANAGEMENT ORGANIZATION
DEPARTMENT OF LANDS AND FORESTS
PROVINCE OF NOVA SCOTIA



DEPARTMENT OF LANDS AND FORESTS

P.O. Box 698
Halifax, Nova Scotia
B3J 2T9

MINISTER

Hon. Ken Streach
424-4037

DEPUTY MINISTER

D.L. Eldridge
424-4121

DEPARTMENTAL FUNCTION AND ORGANIZATION

The Department of Lands and Forests was established by legislation enacted in 1926. It is charged with administering the Lands and Forests Act and various other statutes, including the Beaches Preservation and Protection Act and the Provincial Parks Act.

From these Acts it derives authority to manage Crown lands, to provide a system of parks, and to protect the forests, wildlife, and beaches. Inherent in the legislation and incumbent upon the department are responsibilities pertaining to the productivity of the forests generally, the implementation of forest management programs, the supply of forest products, public education, and the enhancement of recreational and scenic values. The department also assists federal agencies in enforcing the Migratory Birds Convention Act.

The functions and activities of the department are carried out through four branches: Administration, Operations, Program Planning, and Land Services. This structure is shown in Figure 1. Unless otherwise indicated, functions are located in Halifax (P.O. Box 698, Halifax, Nova Scotia B3J 2T9). The department is well decentralized with staff and facilities located in all municipalities (Figure 2).

BOARDS, COMMISSION, AND AGENCIES

NOVA SCOTIA FOREST PRACTICES IMPROVEMENT BOARD

Suite 210
Queen Square
45 Alderney Drive
Dartmouth, N.S.
(424-5443)

This board administers the Forest Improvement Act, which includes

carrying out programs of education for good forest practices, recommending cutting practices, and generally using its authority to encourage better forest management practices.

NOVA SCOTIA PULPWOOD MARKETING BOARD

Suite 210

Queen Square

45 Alderney Drive

Dartmouth, N.S.

(424-7598)

This board is responsible for administering the Pulpwood Marketing Act. The purpose is to regulate the marketing of pulpwood on behalf of producers and buyers in the province.

ROYAL COMMISSION ON FORESTRY

The report of the Royal Commission on Forestry was released on December 14, 1984. Since its appointment on May 6, 1982, the three-man commission heard 137 oral submissions in 11 centres throughout the province and reviewed 24 written briefs.

The report is available for viewing at most department district offices and is for sale at the Nova Scotia Government Bookstore in Halifax.

ACTS ADMINISTERED BY THE DEPARTMENT OF LANDS AND FORESTS

1. Beaches and Foreshores Act
2. Beaches Preservation and Protection Act
3. Blueberry Associations Act
4. Bowaters Mersey Agreement Act
5. Forest Improvement Act
6. Indian Lands Act
7. Kedgemakooge National Park Act
8. Land Holdings Disclosure Act
9. Land Titles Clarification Act
10. Lands and Forests Act
11. Nova Scotia Pulp Limited Agreement Act
12. Parks Development Act
13. Provincial Parks Act
14. Pulpwood Marketing Act
15. Scalers Act
16. Scott Maritimes Pulp Limited Agreement Act, 1965
17. Surveys Act (not proclaimed)
18. Trails Act (not proclaimed)

ADMINISTRATION BRANCH

The Administration Branch is responsible for financial management, personnel, administration, and air services, as well as for implementing administrative policies and procedures on behalf of the deputy minister and minister.

It is composed of three divisions: Financial Management, Personnel Administration and Air Services.

FINANCIAL MANAGEMENT

The Financial Management Division develops financial systems and procedures and provides financial information to all branches of the department and control agencies of government. They assist in the preparation of the departmental expenditure estimates and prepare the revenue budget. They also manage and process departmental accounts payable, administer the collection of revenue, and are responsible for the distribution and sale of game and fishing licenses.

Expenditures and Revenues
1984-1985

ORDINARY EXPENDITURES**Administration Branch**

Office of Minister and Deputy	\$429,858	
Administrative Service	96,315	
Financial Management	691,291	
Game Licenses	285,053	
Personnel and Payroll	108,618	
Legal Services	73,636	
Air Services	2,004,878	
Grants and Assistance	119,225	
Forest Operators Assistance	875,000	
Forest Practices Improvement Board	25,335	\$4,709,209

Program Planning Branch**Administration**

Branch Administration	\$232,455
Urban Forestry	29,950
Forest Resources Education	323,927

Reforestation and Silviculture

Division Administration	200,174
Forest Nurseries	1,447,926
Silviculture Training	185,142
Tree Breeding	377,341
Insect and Pathogens Protection	751,933

Forest Resource Planning and Mensuration

Administration Services	300,213
Resource Management Planning and Coordination	432,242
Forest Inventory	639,481
Timber Loan Board	30,559
Scaling	61,596

Wildlife Management

Wildlife Management Planning	555,477
Inland Fisheries	239,339
Wildlife Parks	609,604
	\$6,417,359

Operations Branch

Administration	\$488,627
Silviculture Agreements	478,195

Field Services

Administration	2,185,692
Forest Protection	2,088,165
Enforcement and Hunter Safety	617,120
Parks Maintenance and Operation	1,099,714
Extension and Training	51,406
Private Land Forest Management	1,120,383
Wildlife Management	446,488
Crown Land Forest Management	1,992,983
Properties, Vehicles and Equipment	983,781
Special Employment Projects	13,043

DEPARTMENT OF LANDS AND FORESTS

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Provincial Depot		
Administration	169,096	
Fire Control	605,081	
Mechanical Equipment	532,172	
Support Services	251,603	
Radio Communications	663,618	\$13,787,167

Land Services Branch

Administration	\$71,360	
Land Acquisition and Registry	566,885	
Surveys Division	976,611	
Provincial Crown Land Record Centre	<u>224,251</u>	\$1,839,107
Forest Renewal Agreement ¹		\$369,472
Forest Resource Development Agreement ¹		3,054,313
Royal Commission on Forestry ²		<u>139,005</u>

TOTAL ORDINARY \$30,315,632

Ordinary Recovery Detail

Program Planning	
Forest Resources Education	\$3,464
Insect and Pathogens Protection	32,270

TOTAL RECOVERIES \$35,734

1. Funds budgeted in the Department of Development
2. Funds budgeted under Public Service

CAPITAL EXPENDITURES

Furniture and Equipment

Office Furniture and Equipment	\$27,989	
Firefighting Equipment	68,079	
Forestry Equipment	<u>241,970</u>	\$338,038

Other

Program Planning		
Parks and Recreation	\$1,881,763	
Forest Research	411,112	
Operations		
Operational Silviculture	326,045	
Crown Land Access Roads	153,855	
Land Services		
Land Acquisition	1,052,249	
Surveys	<u>1,319,929</u>	\$5,144,953

Forest Resource Development Agreement ¹	<u>\$1,518,961</u>
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TOTAL CAPITAL	<u>\$7,001,952</u>
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1. Funds budgeted in the Department of Development

REVENUE

Admission Fees - Campgrounds	\$246,923	
Fines and Forfeitures	107,036	
Games and Fishing Licenses	2,038,775	
Leases and Grants	54,426	
Nursery - Sale of Trees	690,184	
Selective Cutting	599,836	
Timber and Fuelwood Licenses	2,287,396	
Miscellaneous	<u>239,184</u>	\$6,263,760

TOTAL REVENUES	\$6,263,760
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PERSONNEL ADMINISTRATION

The Personnel Administration Division is responsible for personnel and payroll documentation, recruitment and selection, staff training and development, administration of casual rates of pay, employee counselling and grievances and other personnel matters.

The number of civil service positions increased slightly over the year through the conversion of long-term casual employees to permanent civil service status. During the year, between 375 and 775 casual employees were on strength, depending upon the season, to assist in full-time programs of the Department, to staff regular seasonal programs, and to participate in employment creation programs.

The year saw the retirement of George L. MacQuarrie, Supervisor of Scaling and Munroe A. Withrow, Field Representative, both working out of Truro; Arthur S. MacKay of New Glasgow, Andrew A. Hanam of Baddeck, John L. Landry of St. Peter's, and James Trask of Parrsboro, all Technicians, Forest Resources; William R. Smith and M. Kenneth Naugler, Rearing Pond Attendants at Moser's River; J. Norby Meldrum, Sanctuary Warden at the Chignecto Management Unit; Walter A. McKillop, Foreman at the Provincial Wildlife Park in Shubenacadie; and Harris W. Wood, Bulldozer and Heavy Equipment Operator at the Stanley Management Unit.

AIR SERVICES

An air service is operated and maintained by the department for forest fire detection and suppression, aerial support in emergency situations, resource development and management, and transport of government personnel. It also assists in policing game violations and other related work.

The fleet consists of four helicopters and three fixed-wing aircraft. All of the helicopters and one fixed-wing aircraft are equipped for water bombing.

During the year the department's helicopter and fixed-wing aircraft flew 236 hours on fire patrol and water bombing missions. The Air Service was called on by Emergency Measures Organization (EMO) to carry out 32 searches for missing persons. Flying time for EMO amounted to 112 hours. The Service also carried out seven air ambulance missions.

WOOD SALVAGE/STORAGE AGREEMENT

During the period the department sold 64,981 cords (235,529 m³ [stacked]) (bark-on basis scale) of budworm-killed softwood pulpwood, previously stored at roadside on Cape Breton Highlands, to Nova Scotia Forest Industries for use in its mill. Approximately 17 per cent of this had been debarked. As of March 31 there were 96,942 cords (351,371 m³ [stacked]) (bark-on basis scale) still stored at roadside on the Highlands. Approximately 55 per cent of this wood has been debarked.

JOB CREATION PROGRAMS

During the summer of 1984, the Department of Lands and Forests in cooperation with the Department of Development created some 800 jobs to carry out park maintenance, forest protection, environmental clean up and silviculture.

In addition the department created some 50 jobs in Richmond County clearing abandoned roads for use in accessing forested land throughout the county.

PROGRAM PLANNING BRANCH

The Program Planning Branch is responsible for developing, evaluating, and recommending policy and program alternatives in forest management, wildlife and provincial parks. The branch is also responsible for the implementation of support programs, including forest nurseries, forest research, silviculture training, education and public information, wildlife parks, aerial insect protection programs, and entomological services.

This branch comprises four divisions and two subdivisions. The divisions are: Reforestation and Silviculture, Forest Resources Planning and Mensuration; Wildlife; and Parks and Recreation; located in Truro, Kentville, and Debert respectively. The Forest Resources Education subdivision is in Halifax. Direction in each case is provided from the Halifax Head Office.

Reforestation and Silviculture Division. The Reforestation and Silviculture Division, P.O. Box 68, Truro, N.S. B2N 5B8 (895-1591), is responsible for planning and directing department programs which effectively increase and improve forest yields within the province. This includes tree breeding, forest nurseries, silviculture training, forest research, entomology, and aerial insect protections programs.

The Tree Breeding Centre (662-3300) is situated at Debert, and the forest nurseries are in the following locations:

Provincial Forest Nursery
P.O. Box 130
Lawrencetown, Anna. Co., N.S.
B0S 1M0

Strathlorne Forest Nursery
P.O. Box 489
Inverness, N.S.
B0E 1N0
258-2626

Wittenburg Forest Nursery
P.O. Box 250
Stewiacke, Col. Co., N.S.
B0N 2J0

Forest Resources Planning and Mensuration Division. The Forest

Resources Planning and Mensuration Division. P.O. Box 68, Truro, N.S. B2N 5B8 (895-1591), is charged with maintaining a continuing forest inventory of all lands, land evaluation, scaling functions, and carrying out forest resources planning, which includes Crown land management planning, economic planning and road engineering.

Wildlife Division. The Wildlife Division, P.O. Box 516, Kentville, N.S. B4N 3X3, (678-8921) is charged with appraising and evaluating the status and population trends of wildlife and inland fish species and with recommending harvest programs. The division also operates wildlife parks at Shubenacadie (Colchester County), Upper Clements (Annapolis County), and Two Rivers (Cape Breton County), and a fish-rearing station at Kelly Lake (Halifax County).

Parks and Recreation Division. The Parks and Recreation Division, RR#1, Belmont, N.S. B0M 1C0 (Debert) (662-3030), is responsible for conducting studies and preparing plans for the orderly development of a provincial parks and trails system as well as the construction program.

Forest Resources Education Subdivision. The Forest Resources Education Subdivision, P.O. Box 68, Truro, N.S. B2N 5B8 (895-1591), is responsible for a comprehensive education and technical information program for the general public and the department's staff.

Forest Industry Development Subdivision. The Forestry Industry Development Subdivision (424-7708), identifies, investigates, and analyses development opportunities for wood-using industries within the province; advises in related support programs; and provides technical advisory service to the sawn-products sector.

ADMINISTRATION

FOREST RESOURCES EDUCATION SUBDIVISION

This subdivision, with a staff of six, provides a central education and information service to staff and public. This is carried out through an enquiries desk, literature, a motion picture program and audio-visual library, production of exhibits, posters and signs, special advertising, courses, editing and design consultation, and walks and talks. This service complements and supports the extension/public information function performed by all staff.

Thanks to increased public interest in forestry, demand for

information on all aspects of the resource is increasing.

Enquiries and Literature

Written and telephoned requests are answered by personal letter or card, using literature from a list of about 90 titles on hand. We depend increasingly on our two periodicals--the quarterly wildlife magazine *N.S. Conservation* and the bimonthly forestry newsletter *Forest Times*. Ten times a year they provide information once supplied by individual publications. (Readers get the benefit of up-to-date information, and the department saves by buying and distributing reprints.) A biologist solicited, wrote and edited articles for *N.S. Conservation*; a technical writer did the same for *Forest Times*. During the year a combined total of 26,871 copies were mailed to individuals. Near year-end the *N.S. Conservation* mailing list had 18,224 names; *Forest Times* was stable at just over 9,000 subscribers. Estimated combined readership is 83,000.

We also serviced approximately 1,300 individual requests for literature, mailed *Technical Notes*, and looked after publishing and distributing the annual *Forest Products Directory*, *Trapper's Newsletter* (6,222 copies) and the department's Annual Report.

Other mailouts included 3,000 National Wildlife Week kits (including locally-designed material for the press), National Forest Week material, and special crests to recognize deer management cooperators. Summaries of hunting, fishing and trapping regulations were updated and prepared for publication. In all some 200,000 pieces of literature were distributed.

The department's submission to the Royal Commission on Forestry was produced and distributed to staff and public. Material was supplied for the Department of Development's new resource atlas, due out in early 1986.

Extensive upgrading of mailing lists was completed to streamline subscription renewals and expand the number of available mailing lists.

Audio-Visual

Working through the Department of Government Services, the subdivision produces on average one 16mm motion picture a year and one or more slide-tape sets. Since these are of varying lengths and complexity, there are usually two or more in progress.

Film:

After some legal delays the joint National Film Board/Lands and Forests film "The Last Log Drive" was brought to final edit stage for expected completion in the fall of 1985. Filming for a new film on modern forestry in Nova Scotia was commenced.

Slide Sets:

A 20-minute slide tape presentation, "Wild Fur Harvesting in Nova Scotia" was produced in cooperation with Government Services for use at the N.S. Trapper's Association and staff at schools. We also contracted with an artist to prepare artboards depicting pioneer uses of trees for the slide-tape on native trees.

Library:

Reduced staff did their best to service continuing public and staff demand for audio-visual aids and equipment. A casual was hired to clean and repair films and to assemble field film blocks. Several new 16mm prints were previewed and purchased a few old ones discarded. Estimated number of showings to school and adult audiences was 750; total audience was about 70,000.

The subdivision developed and coordinated a successful two-day course in still photography for selected field staff.

Exhibits/Signs/Posters

A major exhibit entitled "The Tools We Use" was prepared under contract with FRDA funds and seen by some 10,000 viewers at the 1984 N.S. Forestry Exhibition in Windsor; components of its were also used in the Provincial Exhibition and seven other fall fair venues. At Windsor the Subdivision also coordinated a model sawmill and equipment display and a helicopter demonstration; help was also given to prepare a Group Ventures exhibit. The "Oldtime Woods Ways" exhibit was shown at the Eastern Nova Scotia Forestry Exhibition. Two System 70 displays--on "Careers in Forestry", and "Cape Breton Wildlife Management"--were prepared.

Because of demand, another 10,000 "Nova Scotia is Eagle Country" posters were printed. A school poster on freshwater fishing was also produced and distributed.

Media and Advertising

The major advertising expenditure went into airtime for the spring-summer forest fire prevention campaign. Because of reduced funding only print and radio advertising were used. A limited hunting-courtesy campaign using our 1983 television spots was aired in the fall. Print advertisements promoting private land forestry were run in the N.S. Forestry Exhibition program, the *Chronicle Herald*, the *Atlantic Advocate*, *Farm Focus* and a few other publications. National Forest Week (NFW) ad copy was distributed to provincial weeklies and dailies, and a new Department NFW ad was produced and run. Press coverage was arranged for the transfer of six eagles to New England and for a goose release program in Cape Breton. A National Forest Week radio interview was given. An interview about the department's eagle management program was given to Dartmouth Cable TV. Enough free-time radio spots for several months' airing on agricultural outlets were coordinated and produced through the Department of Agriculture and Marketing.

Miscellaneous

The biologist wrote an article for a wildlife administration periodical and arranged forestry tours for Wildlife Division staff. Talks and tours were given on forestry and wildlife to various groups, including the Froebel Centre's conference for some 80 day-care-workers, groups of public school and teachers' college students, and a science teachers' inservice. The biologist served on the Land Resources Coordinating Committee's Education Sub-Committee, and attended meetings and seminars relating to the Wildlife Federation, trapper education, law enforcement and silviculture. The technical writer attended the Canadian Forestry Association's annual Woodlot Extension Specialists' Seminar in the province of Quebec. A proposal for a public opinion survey was drafted for Management Board approval but turned down.

FOREST INDUSTRY DEVELOPMENT SUBDIVISION

This past year has again been a relatively slow one in sawmill construction.

New Sawmills

New sawmill developments were as follows (to March 31):

S.M. Gammon (Pictou Co.)	-has received machines but not in production yet
Williams Brothers (Pictou Co.)	-new sawmills

Nick Williams (Pictou Co.)	-new sawn
Morton Building Supplies (Queens Co.)	-new planing m
Harry Freeman & Son Ltd. (Queens Co.)	-remodelled planning m & sawn
Tom Isenor (Halifax Co.)	-installed a Pendu sawn
Erfan Lumber (Halifax Co.)	-completed packaging pl
A.T. Betts & Sons from Wentworth (Cumberland County)-was bou	by Oxford Building Suppl

Biomass

Scotia Farms of Kentville, Kings County installed a small P.T.O. chipper. Avon Valley Greenhouses in Falmouth started a forest biomass burning plant. Britex Ltd. of Bridgetown has acquired a boiler for burning forest biomass but had not installed it as of March 31.

A tour of the biomass users in the Annapolis Valley was organized for the Energy Committee of Nova Scotia Forest Products Association. The supervisor attended numerous meetings with the N.S.F.P.A. regarding efficient use of wood residues.

Courses and Exhibitions Attended

- N.S. Forestry Exhibition at Windsor (one day);
- Fingerjoint Seminar at Ottawa (one day);
- Dry Kiln Operators Course at Fredericton (three days);
- A wood chipper course was attempted for the industry with no luck. We hope that one will be held this year;
- Four separate seminars were held for our N.S. sawmills by Forintek in January 1985;
- As a follow-up to the saw filer's course at the Maritime Forest Ranger School, Don Clark, Bill Brittain and the supervisor toured the province visiting former students.

Meetings

The supervisor also attended the first organizational meeting for the Maritime Saw Filer's Education Association (out of 60 members, 15 were from our N.S. sawmills); the Northeast Saw Filers Educational Association meeting at Portland, Maine; the N.S.F.P.A. annual meeting at Truro; numerous meetings at the Maritime Forest Ranger School regarding the proposed training sawmill; and the Maritime Lumber Bureau annual meeting at Moncton. After numerous meetings on sawmill efficiency, our first study by Forintek was done on Bowater's Mill at Oakhill.

URBAN FORESTRY

To generate more interest in intensive management of urban forest and related vegetation in Nova Scotia, a forester contacted representatives from cities, towns and villages and helped them with a tree inventory, tree pruning and removal, tree establishment and planting. More communities are using this service each year.

To assist in this promotional program, literature, slides and movies are being accumulated. Plans call for municipalities to be surveyed to determine tree care needs, followed by seminars and booklets on tree care.

The forester is also responsible for coordinating the Dutch Elm Disease Assistance program.

DUTCH ELM DISEASE ASSISTANCE

The Dutch Elm Disease (D.E.D.), an introduced fungus carried by bark beetles and usually fatal to North American and European elms, was first noticed in Canada in 1944 at Sorel, Quebec and first detected in Nova Scotia at Liverpool in 1969. It is now found in at least 11 counties.

Although there is no known total cure for this disease, control measures greatly lessen its effect. Fredericton's control program has restricted losses to about 20 per cent, compared to 90 per cent in surrounding areas with no control.

Assistance

In the mid-seventies the province initiated a three-year assistance program, implemented by the department, to provide funds to the municipalities for sanitation work. This was resumed in fiscal 1980-81. At the beginning of the infestation, when the areas are small, contractors removed all infected elm limbs and trees. Infected wood must be burned or buried. The present program provides 50 per cent cost-sharing to municipalities, with money allocated in the descending order of priority to: (1) municipalities with infected trees; (2) municipalities with trees in the immediate area of infected trees; and (3) municipalities in other areas.

Twenty-four municipalities participated in the program this year -- more than during the 1983-84 fiscal year. The amount of assistance allocated to each is shown below:

Municipality	No. of Trees	Claim
Amherst	45	\$1,000
Annapolis County	9	2,690
Annapolis Royal	2	910
Antigonish	68	2,000
Berwick	4	1,000
Bridgetown	22	2,000
Colchester County	1	100
Dartmouth	5	1,500
Digby	5	1,000
Halifax	32	2,000
Halifax County	6	1,000
Kentville	225 *1	1,000
Kings County	3	250
Lawrencetown	1	1,000
Middleton	9	1,000
New Glasgow	24	1,500
Oxford	99 *2	1,000
Pictou	19	1,000
Stellarton	9	1,000
Stewiacke	8	500
Truro	20	2,000
Westville	9	1,000
Windsor	7	2,000
Wolfville	11	1,500
TOTAL	643	\$29,950

*1. Small trees in forested areas.

*2. Only free-fall cost

REFORESTATION AND SILVICULTURE DIVISION

NURSERY OPERATIONS

This year saw an expansion of reforestation, primarily as a result of work funded under the Forest Resource Development Agreement (FRDA).

Distribution by Nursery 1984

Lawrencetown	3,131,637
Strathlorne	2,583,740
Wittenburg	2,587,319
	<u>8,302,696</u>

Distribution by User Agency, 1984

Crown	885,128
Pulp Companies	3,919,726
FRDA	3,231,995
Small Private	
(Non FRDA)	245,700
Other	<u>20,147</u>
	8,302,696

Of the trees planted on Crown land and FRDA woodlots, 96,560 were planted by Boy Scout organizations.

Highland Spruce Production

Highland black spruce production is gradually increasing; 88,440 were shipped for out-planting on the Highlands this year. A crop of Highland white spruce was grown from seed in the winter and summer of 1984 to be shipped in 1985. In all there were 3,493,310 seedlings. Of the Highland black spruce vegetatively produced in 1984, 778,055 were used as parent stock for the 1985 winter crop, 51,000 were shipped for outplanting and 4,051,400 will be outplanted in 1986.

Seed Procurement

In 1984, 711 bushels (258.6 hl) of cones were collected, yielding in excess of 473 pounds (214.5 kg) of seed. (As of this writing, not all yield data was available.) In addition we purchased 100 pounds (45.4 kg) of balsam fir seed, 20 pounds (9.1 kg) of black spruce seed, and 65 pounds (29.5 kg) of white spruce seed, all of local origin.

The main species and volumes collected were as follows:

Species	Volume
red spruce	127 bu. (46.2 hl)
white spruce	118 bu. (42.9 hl)
black spruce	114.5 bu. (41.6 hl)
Norway spruce	155 bu. (56.4 hl)
balsam fir	147 bu. (53.5 hl)

Expansion and Development

Both the Strathlorne and Lawrencetown nurseries completed erection of shade houses, and Strathlorne and Wittenburg each developed additional holding areas. A new transplant field was developed at Lawrencetown and an additional area was cut over in preparation for developing as a transplant field.

Administration

Nursery administration, in cooperation with nursery staff, allocated planting stock equitably, consolidated nursery budgets, coordinated conservation surveys and collections and monitored progress, and provided advice and recommendations.

Training

Two staff members attended the Northeastern Area Nurserymen's Workshop, one had a tour of New Brunswick nurseries, two attended a Greenhouse Container Update at the Maritime Forest Ranger School and four attended the Maritime Nurserymen's Workshop.

Public Relations

Nursery tours were conducted at all three nurseries for technical groups and individuals, special interest groups, school children and youth groups, and the general public; a number of short talks were presented. Various reports were prepared and circulated to interested parties and enquiries from the public were responded to in person, by telephone or through correspondence.

TREE BREEDING

The Tree Breeding Section is responsible for coordinating the overall Tree Improvement Working Group (TIWG) program and for fulfilling the

department's commitment to the project. Operational work is shared with three industrial members: Bowater Mersey Paper Company Limited, Stora Forest Industries, and Scott Paper International, Inc. Technical and scientific expertise is made available through the Maritimes Forest Research Centre of the Canadian Forestry Service.

The program objective is to supply, by the year 2000, reforestation projects in the province with genetically improved and tested seed. Improvement in the first cycle of breeding is expected to increase the growth rate of planted stands by 10-20 per cent—equivalent to 3-6 cords/acre (25-50 m³/ha) *extra* yield at harvest. Additional benefits include increased resistance to disease, higher quality sawlogs and improved fibre quality for pulping.

Orchard Development

Emphasis in TIWG operations has shifted from selection of plus-trees to orchard expansion and testing. Grafted orchards are used primarily for white and red spruce, although some work is also carried out with Norway spruce and white pine. Most orchards were expanded, and a new white spruce orchard was started at Debert. Seedling seed orchards are used primarily for black spruce. Although no black spruce orchards were expanded in 1984, material was established in greenhouses for a major expansion and one new orchard is planned for the spring of 1985.

Orchard area as of 1984 was as follows:

Species	Cooperator	Location	Acres (hectares)		Type	Established
white spruce	Scott	East Mines	6.0	(2.4)	clonal	81,83,84
	Stora	MacQuarrie Lk Rd	8.9	(3.6)	half-sib	1978
	NSLF	Debert	1.3	(0.5)	clonal	1984
red spruce	NSLF	Lawrencetown	4.0	(1.6)	clonal	1977
	Stora	Waterville	3.3	(1.3)	clonal	81,83,84
	Bowater	Melvorn Square	4.5	(1.8)	clonal	83,84
black spruce	Scott	East Mines (eastern N.S.)	7.9	(3.2)	half-sib	1982
	Stora	Strathlorne (Highlands)	6.9	(2.8)	half-sib	1983
Norway spruce	NSLF	Debert	2.9	(1.2)	clonal	81,83,84
white pine	NSLF	Debert	3.1	(1.3)	clonal	81,83,84
Totals:			Clonal 25.0 (10.1)			
			Half-sib 23.7 (9.6)			
			Grand Total 48.7 (19.7)			

Improved Seed Production

The first major seed collection from a grafted orchard was conducted this past fall at the department's installation in Lawrencetown. A total of 7.7 pounds (3.5 kg) was collected, it was composed mainly of red spruce, with smaller quantities of white and Norway spruce. Samples of open-pollinated seed from each clone were set aside for test purposes. Seed production from the older grafted orchards is expected to increase greatly over the next few years.

Test Planting

A series of test installations was established at four sites using rooted cuttings of full-sib black spruce families. This experiment should provide a sensitive analysis of genotype-environment interactions in this species, and provide information valuable in the assessment of progeny performance and in the development of breeding strategy.

To evaluate new material scheduled for outplanting at orchard sites in 1985, two major family tests of selected black spruce plus-trees were raised at the Centre. A set of standard test families was included for comparison with results from older installations.

Seed Inventory and Testing

In addition to tree breeding responsibilities, the Section is also charged with inventory and quality monitoring of tree seed in storage for department use. Over 1,400 production and research lots are maintained at the Centre. Withdrawals and deposits occur frequently throughout the year, with several research samples exchanged with workers in other provinces, the United States and overseas.

All new seedlots are tested for both physical quality and viability. Seedlots in long-term storage are tested regularly to monitor effects of storage. A series of comparison tests, set up in cooperation with the National Tree Seed Centre at the Petawawa National Forestry Institute, showed that stratified testing generally gives more consistent results. Such cooperative tests, useful in identifying minor problems in lab technique, will be continued.

Miscellaneous

Staff at the Tree Breeding Centre gave many tours to professional,

educational and general interest groups during the year. As the Centre's reputation spreads, staff are being called upon to host a wide variety of scientific and administrative personnel from other provinces, the United States, Mexico, Columbia, Sweden and other countries.

Many presentations were made by both professional and technical staff to a variety of service clubs, community and professional groups. Several interviews were given to radio and newspaper reporters. The Centre has also become a regular field trip destination for many academic and continuing education courses.

ENTOMOLOGICAL SERVICES

Pest Detection Officers

There are 24 Pest Detection Officers in the department. The PDOs assist in the general Forest Insects and Disease Survey, spruce budworm survey and gypsy moth survey. In 1984 they submitted 486 insect and disease samples.

Forest Pests

Spruce Budworm:

Defoliation of balsam fir and spruce in pure and mixed wood stands occurred on 210,286 acres (85 100 ha) in 1984, of which 64,000 acres (25 900 ha) were light. The 145,051 acres (58 700 ha) of moderate and severe defoliation is a substantial decrease from the 726,983 acres (294 200 ha) so affected in the province in 1983.

Gypsy Moth:

The gypsy moth monitoring committee remained active, coordinating all surveys. This committee was formed in response to the discovery of gypsy moth here in 1981. In 1984 gypsy moth was found for the first time at Dartmouth, Middleton and Weymouth. It was present again at Tusket, New Minas, Halifax and Shelburne, and reappeared at Clementsport, Annapolis County. There were 59 new egg-masses located in the Town of Shelburne--11 on one tree--and over 150 egg-masses in New Minas. Gypsy moth must be strongly entrenched in at least these two localities.

Spruce Beetle:

Cape Breton Island has constituted the major outbreak area during the

past few years and by the end of 1983 no large areas remained without severe white spruce mortality. In 1984, new mortality occurred only in patches in the western and northern parts of the island, generally with less than 10 per cent of the remaining trees being affected. However, more than half of the white spruce trees, especially mature ones, are now dead. On the mainland, white spruce mortality was also much reduced, being observed in only a few isolated pockets.

Forest Tent Caterpillar:

The forest tent caterpillar caused 108,973 acres (44 100 ha) of severe, and 5,683 (2 300 ha) of moderate defoliation in 1984, an 28,170 acre (11 400 ha) increase from last year in the area of the outbreak. Most of the defoliation occurred in Annapolis, Kings, and Hants counties, but the insect also affected trees in numerous patches in northern Cumberland County. In the Annapolis Valley poplars, birch, and even alder were completely striped in some areas. Although the insect was present in many other parts of the province, the highest populations were found in western Nova Scotia.

Fall Cankerworm:

In Nova Scotia various levels of defoliation resulted from larval feeding by this species throughout the mainland. In the eastern part defoliation was most often caused in combination with the winter moth.

Winter Moth:

Populations mixed with fall cankerworms caused increased hardwood defoliation in eastern Nova Scotia. Severe or moderate defoliation, mostly of wild apple trees, occurred in east Colchester, north Pictou, and Antigonish counties and at scattered points in Guysborough County. In western Nova Scotia, populations declined.

Oak Leaf Shredder:

This insect, a serious pest of oak in the Maritimes, has been defoliating oak here since the early 1970s. As a result, oak trees in many areas are suffering from various degrees of twig, branch, and crown dieback. In 1984, the general decline in their populations reported in 1983 continued.

Balsam Gall Midge:

This insect was again widespread in 1984, with infestation levels extremely

variable in both natural stands and in Christmas tree plantations.

The highest infestation level was recorded near Colpton, Lunenburg County, where 60 per cent of the needles were affected. Counts in nine Christmas tree plantations in Lunenburg, Kings, Halifax, Guysborough, and Antigonish counties indicated an average infestation level of 2.6 per cent on the trees, the highest being recorded at East Ship Harbour, Halifax County, at 5.3 per cent. A survey conducted by Lands and Forests' staff at 69 locations in Christmas tree plantations, cultivated and natural stands—sprayed or unsprayed against the insect—in Yarmouth, Annapolis, Kings, Cumberland, Colchester, Halifax and Guysborough counties showed that an average of 3.4 per cent needles per tree were infested by balsam gall midge. The insect was present in 74 per cent of the areas. The highest incidence was recorded in a young natural stand cultivated for Christmas trees in Halifax County, where 38.85 per cent of the needles per tree were affected.

Balsam Twig Aphid:

This insect was present throughout much of the region but, except for spots of high infestation, the anticipated general outbreak did not materialize in 1984.

Pathogens

Dutch Elm Disease:

This fungus did not spread significantly in 1984; most new locations were from inside or on the peripheries of the known distribution. The only exception was Berwick, Kings County; the discovery of the disease there has closed the gap between the two infected areas in the Annapolis Valley. However, the disease intensified greatly in many areas within the known range, as indicated by newly infected, dying trees.

In Antigonish County, where the disease was first found in 1981, more than 100 dead and dying trees were counted just north of the Town of Antigonish. Near Newport, Hants County, 11 per cent of the trees became infected between 1980 and 1982; infection rate increased significantly to 55 per cent in 1983 and to 69 per cent in 1984. This pattern agrees closely with that found in other parts of the Maritimes and indicates that most elm trees will become infected within a few years in this area. The disease also intensified in other outbreak areas where no sanitation is practised.

Sirococcus shoot blight:

The disease is present and is most widely distributed in red pine plantations west of the Colchester-Pictou and Halifax-Guysborough county lines.

Needle Rusts:

In 1984, weather conditions favored fungi, and needle rusts were common though seldom serious.

Prediction Surveys

This department conducted three predictive surveys for the spruce budworm last year: moth flight survey, egg-mass survey and second larval stage (L-2) survey. Department staff also assisted with the federal aerial defoliation survey. Moth flights were monitored using 21 light traps through the province. No moth flights were noted in 1984. Spruce budworm egg-mass samples were collected from 365 locations within the province.

The spruce budworm egg-mass population densities continued low on Cape Breton Island, but populations persist within spruce stands. In Hants, Digby, Lunenburg, Shelburne, Queens and Yarmouth counties, budworm population densities remain essentially the same as in 1983. In Halifax there is a small area 16,738 acres (6 773 ha) at the Head of St. Margaret's Bay with moderate egg-mass densities.

In Kings and Annapolis counties there have been reductions in egg-mass densities with patches of moderate densities occurring on the North Mountain area in Kings County (See Table VI, Appendix).

The principal infested areas on the mainland are the Northumberland Coast and adjacent areas of the Cobequid Mountains in Cumberland, Colchester, Pictou and Antigonish counties. Within this area noticeable defoliation is expected to occur in spruce and balsam fir stands.

The data for the egg-mass and L-2 data are in general agreement. The egg-mass data have, however, underestimated the intensity of the infestation along the Northumberland Coast between New Glasgow and Antigonish.

Along the Northumberland Coast, from New Glasgow to the New Brunswick border, the data from both surveys are complementary, with the

majority of sample locations showing high or higher populations.

For St. Margaret's Bay the spruce budworm egg-mass survey and the L-2 survey data indicate a localized moderate population at the Head of the Bay.

On Cape Breton Island endemic spruce budworm populations persist in spruce and fir stands on the Highlands. Medium numbers were noted from white spruce in two sample locations in the Margaree River Valley.

Spruce Budworm Spray Program

The objective was to protect current foliage in treatment areas.

Aircraft:

A Hughes 500 helicopter accompanied by two guidance aircraft was used to spray the treatment areas in Pictou County and three designated areas in Cumberland County. Six Ag-cats, stationed at Parrsboro Airport, were fitted with spray Micronair AU 5000 mini-atomisers. Four Cessna 172s were used as guidance aircraft.

Area flown:

A total of 50,747 acres (20 537 ha) was flown. Of this 48,487 (19 622 ha) were in Cumberland County, 1,536 acres (622 ha) in Pictou County, 435 acres (176 ha) in Kings County, and 289 acres (117 ha) in Colchester County.

Small farm woodlots accounted for 29,116 acres (11 783 ha), Crown land for 15,780 acres (6 386 ha), and Scott Paper Company for 5,851 acres (2 368 ha).

The cost was \$14.25 per acre (\$35.20 per hectare).

Biocide:

One commercial and one experimental formulation of *Bacillus thuringiensis kurstaki* (Btk) were used. Formulations were applied neat.

Group Ventures:

The Group Ventures played a major role in the organization of treatment

areas and public relations for the foliage protection on small farm woodlots within and at times beyond their service areas. In Nova Scotia private individuals must apply for foliage protection.

Efficacy - White Spruce

The efficacy of *B.t.k.* at 20 billion international units (BIU) per ha was 87 per cent foliage protection and at 30 BIU per ha was 85 per cent. The reduction in survival was 37 per cent for the lower dose as compared to 53 per cent for the higher dose. It would appear that 20 BIU per ha remains an effective dose for the protection of white spruce having pre-spray larval populations less than 29 larvae per 17.7-inch (45-cm) branch tip. A dose of 30 BIU per ha should be used against a population greater than 30 larvae per 17.7-inch (45-cm) branch tip.

Efficacy - Red Spruce:

The degree of foliage protection on red spruce was less than expected. This year relative foliage protection ranged from a low of zero to a high of 65, with a weighted average of 23.3. The per cent reduction in survival varied from one per cent to 100 per cent without corresponding variation in foliage protection; i.e., a one per cent reduction in survival in Cumberland County (Sand River Operational) resulted in a 15 per cent foliage protection. It would appear that the dose of 20 BIU per ha can no longer be considered as the minimum effective dose to provide adequate foliage protection of red spruce.

Efficacy - Balsam Fir

There were no balsam fir treatment areas in this year's program. However, data from 1979 and 1980 indicate that 20 BIU per ha is the effective minimum dose against population less than 29 larvae per 17.7-inch (45-cm) branch tip.

Agriculture Canada Sampling

Biosystematic Research Institute, Ottawa

Intensive sampling of species of insects and mites from Cape Breton Highlands was done in 1984. No particular Arctic element (groups of commonly occurring species) were noted but Boreal, Acadian and some Appalachian element were noted. This intensive survey of species of insects and mites in Nova Scotia is expected to continue in 1985.

Tick Survey, Dr. H. Specht, Kentville:

Ixodes dimmini (deer tick) which is commonly found on deer in New England was recorded for the first time in Nova Scotia. The nymphal stages attacks birds and adult stage deer. Other large mammals may be casual hosts. In New England it is a vector of Lyme disease in humans. It is most likely that *I. dimmini* is incidental in Nova Scotia.

Populations of *Dermacentor variabilis* (Sag) were found to be very patchy rather than uniform in southern Nova Scotia in 1984.

SILVICULTURE TRAINING**Silviculture Courses**

Two new silviculture courses were given as part of the continuous inservice training program for department and private sector staff. Approximately 170 foresters, technicians, silviculture contractors and foremen attended two-day Merchantable Thinning courses held in various location throughout Nova Scotia. Two hundred and thirty attended 1½-day sessions on Planting Conifers. Both courses were based upon information in the newly published *Forestry Field Handbook* prepared by the Forest Research Subdivision.

Woodlot Management Course

1984 marked the fourth year in which students at the NSAC could enroll in the Farm Woodlot Management course during the fall semester. Twenty-two degree and technical students successfully completed the course, which is designed to acquaint them with the farm woodlot resource and how to better manage it.

Manuals and Training Aids

Copies of the Merchantable Thinning and Planting course binders, including lesson plans, visuals and reference materials, were distributed to selected course participants to help them carry on the training. The manual *Aids to Planting Instruction* was reprinted and included updates on shovel and multipot planting techniques. Copies of a 49-page flip chart set of the same title were also distributed to Lands and Forests', field staff for instructional use.

A three-dimensional display prepared by staff and depicting

differences in the yields between managed and unmanaged softwood forests received widespread interest at courses and annual meetings. Updating and cataloguing of color slides and photographs in the various silvicultural activities continue.

Other Activities

Subdivision personnel represented the department on two advisory committees for the establishment of silviculture worker training programs. One course began in January 1985 at the Adult Vocational Training Centre in Sydney and a second is slated for June 1985 at the Commercial Safety College, Masstown. The department was also represented on the N.S. Forest Products Safety and Training Committee. A Nova Scotia forestry training update was given at the Association of Woodland Tainers' annual meeting held at Grand Lake Stream, Maine.

FOREST RESEARCH

Experimental Reforestation Trials

Research has centred on improving plantation performance with early fertilization and reduction of seedling losses to frost heaving, browsing, etc. The Subdivision established a planting trial on the Cape Breton Highlands to determine how long the planting season can be safely extended there. Also, fertilization trials in young plantations on the 33,000-acre (13 355 ha) Trafalgar burn will help quantify the amount and type of fertilizer needed to improve growth on this area.

Herbicide Trials

Research shows that reducing vegetative competition in plantations significantly increases the growth and survival of the crop seedlings. The Research Section has used the data from over 15 herbicide trials to determine (i) minimum rates, (ii) cost-effective methods, (iii) effective application techniques, and (iv) safe times of application. Three trials in 1984 were established, emphasizing application techniques that included aerial spraying, ultra-low volume application using micromist spray units, and new reduced application rates for ground spraying. As well, the Section is testing newly registered herbicides available for weed control. Experimental plots are established in all trials and are remeasured yearly to provide data needed for successful, efficient and economical application.

Establishment and Remeasurement of Permanent Sample Plots (PSPs)

A series of PSPs has been located in a variety of managed and unmanaged

stands, including fully stocked and understocked softwood and hardwood stands, plantations, thinnings and cleanings, shelterwood cuts, fertilized stands, etc. Approximately 200 PSPs were established, with another 450 plots remeasured. These plots, remeasured on a five-year cycle with plots established in the past, will provide data to refine the department's growth and yield models.

Allowable Annual Cut Model

Forest Research staff has developed a computerized growth simulations model -- Strategic Analysis Wood Supply (SAWS) -- to rapidly determine the effects of various management alternatives, disasters, etc. on the immediate and long-term supply of wood. Using data from permanent and temporary sample plots, refinement of the model is continuing.

Christmas Tree Research

The Section is conducting tests at several locations on the effect of various cultural practices on balsam fir Christmas tree quality.

FOREST RESOURCES PLANNING AND MENSURATION DIVISION

FOREST INVENTORY

General

Forests are a living resource, in constant flux. Sound forest management, therefore, requires constantly updated data. A continuous forest inventory of the province commenced in 1964 with aerial photography of Pictou, Antigonish, Guysborough counties, followed by photo interpretation, cruising, compilation and reports. In 1971, with photography complete for all counties, the second cycle began in Pictou, Antigonish and Guysborough counties. Meanwhile, the subsequent phases took their course, all reporting on a 10-year basis so that no data are more than a decade old. The current stages are reviewed below in order of completion.

To provide current data on forest growth and yield, a province-wide system of 1,765 permanent tenth-acre (0.040 4 ha) plots is also employed. These are measured every five years. The first remeasurement of 1965 plots commenced in 1970, the second in 1975.

Aerial Photography

This is contracted to Atlantic Canada Remote Sensing (MRMS) a year before the field work begins. During the spring and summer of 1984, aerial

photographs were taken of Inverness and Victoria counties using true colour film. From these were produced prints for photo interpretation, scale 1:10 000.

Field Work

From April to September a crew of 16 men established 2,000 sample plots in over 400 stands in Richmond and Cape Breton counties and completed Halifax County for an estimation of forest volumes. From September to December a crew of 14 men remeasured 400 permanent sample plots across the province. This represents 90 per cent of the fourth measurement on these plots for determination of growth and mortality. Also, they gathered data on wildlife habitat.

Compilation and Report

A report on the results for the South Central Subdivision has been compiled and a report is being drafted. The field data for the Cape Breton/South Subdivision are being compiled.

FOREST PRODUCTION

Total commercial forest production for the 1984 calendar year increased by 47.2 per cent from 1983. Softwood lumber increased by 10.3 per cent; hardwood lumber decreased by 9.0 per cent. Overall reported lumber production increased by 9.5 per cent.

The number of firms reported as sawing lumber and/or boxwood was 353, down four from last year.

Pulpwood exported from Nova Scotia in 1984 decreased by 3.2 per cent from 1983, from 39,500 cords (143 171 m³ (stacked)) in 1983 to 38,282 cords or (138 575 m³ (stacked)) in 1984.

Of the 113,944,010 cu. ft (3 226 532 m³) of primary wood production, 29.6 per cent was acquired by sawmills and 70.4 per cent went to roundwood users. A total of 33,752,943 cu. ft. (955 776 m³) of primary production was processed by sawmills. Some 20,328,519 cu ft. (575 639 m³) went to pulpmills as chips from sawmill residue.

Compared to 1983, increases in production were noted for softwood lumber, pulpwood, residue pulp chips, railway ties, laths and boxwood. Decreases were reported for hardwood lumber, mine packs, pit props,

poles and pilings, shingles, and staves and headings.

LAND EVALUATION

There were 21 separate lots of land cruised and evaluated for possible trade of purchase by the Crown for a total area of 4,849 acres (1 963 ha).

SCALING

George MacQuarrie, Supervisor of Scaling, retired the end of March 1985 and has been replaced by Alton Sutherland. Before retiring, Mr. MacQuarrie did extensive work preparing a scaling manual.

Check Scaling

Monthly checks were carried out at Nova Scotia Forest Industries and at Canexel Incorporated to check the precision of the company scales. The Department and Scott Maritimes Limited carried out a joint monthly scaling project to monitor conversion factors between weight and volume. This was necessary because stumpage dues are based on volume and wood cut from Crown lands under the agreement with this company is weighed. In cooperation with district staff, check scales were also carried out on wood cut under agreement with sawmilling firms who hold cutting agreements on Crown lands.

A short scaling course was given to Nova Scotia Forest Industries contractors and employees on October 2nd and 3rd, 1984. The annual Timber Scalers School and Scalers Refresher Course were held at the Agricultural College in Truro during October, with 19 and 16 students attending respectively.

FOREST MANAGEMENT PLANNING

Remote Sensing

The Management Section is continuing to develop the use of remote sensing technology in forest management planning. In particular, "Thematic Mapper" satellite data with higher resolution capabilities are being evaluated for monitoring forest management activities.

Satellite data have been acquired for the province and used to map clearcuts and forest access road construction. Approximately 20 satellite scenes have been classified, using a computer-driven image analysis system.

The Section, in conjunction with other divisions in the Branch, has coordinated a prototype project involving a Geographic Information System (G.I.S.) designed to enter, store, analyze and output data. Data from the Tobeatic Wildlife Management area have been entered into a G.I.S.

Theme maps numbering roughly 50—e.g., forest cover types, biophysical land units, C.L.I. Forestry, recreation and wildlife information — have been entered into a G.I.S., for analysis, overlay and output.

The Section continued to evaluate and monitor annual operations plans for unencumbered Crown lands.

Access Road Engineering

Construction was completed on 73.3 miles (118 km) of forest access road. Of this, 37.4 miles (60.3 km) were constructed under contracts, 28.4 miles (45.7 km) by rental equipment and 7.5 miles (12 km) by department-owned equipment. The Forest Engineering group also became more involved in Park Development work during the fiscal year, including preparation of four tenders which involved constructing 3.5 miles of park access road and the parking lots. The group were responsible in varying degrees for hydrology studies, preliminary planning, surveying and quality control on all road construction activities.

TIMBER LOAN BOARD

Five applications were received, entailing locating, field checking and investigating physical plant and business, and the presentation of reports to the Board. These applications came from five different firms for 11 separate parcels of land covering approximately 3,285 acres (1 329 ha). The Board accepted four applications and processed four loans. The Timber Loan Board's Chief Technician coordinated the processing of applications for loans, annual inspections, investigations and reports required.

WILDLIFE DIVISION

NON-GAME

The non-game section was established to serve the growing public interest

in non-consumptive uses of wildlife, habitat protection and conservation. It provides the capability for the study and management of status species not traditionally considered game species.

Major projects during the year were concentrated on species protected by Provincial statutes. These include hawks, eagles, owls and cormorants. Of special interest are their food habits and habitats in relation to human resource development and use. Among the non-game projects completed or continued in 1984-85 were studies of the numbers, productivity, wintering areas and food habits of breeding bald eagles. On the basis of a relatively stable population of 125-150 breeding pairs of eagles, the Province donated six nestling eagles to the United States. This is part of a long-term cooperative program to help that country reestablish breeding bald eagle populations in its northeastern states.

More than 500 bald eagles have been banded to determine survival and movements of marked birds. Eagle wintering studies now under way indicate that agricultural carrion is important as an additional food source for young birds.

Another study undertaken in 1984-85 looked at the use of orchard habitat by wildlife. Food habitat studies of great and double-crested cormorants in relation to commercial and sports fish have been extended to collect additional information. Island seabird inventories and island ecological surveys were continued, as was the cooperative program with the forest inventory section to measure wildlife habitat characteristics within a variety of forest types.

The use by osprey of substitute nest platforms placed next to power line poles was again monitored, and additional substitute sites elsewhere were also successful in maintaining local breeding populations of these birds.

Many requests were answered for assistance in dealing with nuisance non-game animals and several minor pest animal complaints were investigated. General information on non-game animals was made available to satisfy public requests; presentations on non-game species, their habitats and wildlife-habitat planning were made to various public groups and committees.

BIG GAME

Deer

The 1984 deer season supported the record high number of 95,727 big game licenses: 84,337 Regular Resident, 10,092 Senior Citizen, and 1,298 Non-resident.

From the nearly 40 per cent report card return, hunter harvest rates of 54 per cent for residents and 64 per cent for non-residents were indicated during the October 27-December 1 season. This gives a calculated total legal harvest of 51,810 deer. The reported sex ratio in the harvest was 58.6 per cent males and 41.4 per cent females. By county the calculated deer kill for the 1984 season was:

Kings	1789	Cumberland	4714	Cape Breton	1749
Annapolis	2338	Colchester	4778	Richmond	1940
Digby	2175	Pictou	3417	Inverness	2637
Yarmouth	2328	Antigonish	1170	Victoria	1294
Shelburne	2118	Guysborough	3727		
Queens	2687	Halifax	3908		
Lunenburg	4550	Hants	3709	Unknown	782

Continuing open winters permit our high deer population to continue to utilize the total habitat year-round. This contrasts with our usual winter conditions, which may restrict utilization to less than one-half the total range.

Black Bear

Reports from staff, hunters and foot-snaring permit holders indicate the highest black bear harvest in Nova Scotia history. Hunter returns indicate a calculated harvest of 287 bears, while foot-snare permit returns suggest a take by that method of 565 bears. Twenty-seven bears killed for supposed depredation activity and three in auto collisions bring the total calculated bear kill to 882 animals.

Department staff received 71 nuisance bear complaints. Investigation indicated three as doubtful, 28 as bear passing close to human activity; 40 were of actual damage or threat to crops, livestock or property. Of the latter, beehives generated 32.5 per cent of the complaints; bears in grain and bears in sheep pastures each accounted for 12.5 per cent.

A sample of teeth taken from bears killed was aged by the cementum

annuli method. The oldest age determined in this sample was 21 years -- a male.

Moose

Pellet group inventories of representative habitats and aerial surveys in February 1985 suggested no significant change in mainland moose populations since the termination of legal moose hunting following the 1981 season. The introduced herd on Cape Breton Island, however seems to be in its post-introductory boom stage. Relatively high densities have been reported from the Highlands.

FURBEARERS

There was a general increase in fur prices in 1984-85 over that of the previous few years. Furbearer license sales increased by 170 from 3,929 to 4,099 in 1984-85. Harvests of all species except fisher were higher than in 1983-84, and—in the case of beaver, muskrat, otter, fox and squirrel—were higher than in 1982-83. These higher prices and higher harvests resulted in a fur value to trappers of nearly a million dollars.

In the last three seasons bobcat harvest figures were 1,164, 1,041 and 1,091. This steady harvest, and an increasing reproductive rate over the past two seasons (nearly half the 1984-85 harvest was made up of young-of-the-year), signifies that bobcats are responding to improved food conditions, yet are not being so heavily harvested as to interfere with optimum reproduction. Unless there is a sudden and unexpected crash in our present rabbit populations, the current high bobcat reproductive rate should allow them to make a slow comeback with the help of the delayed snaring season.

Coyote populations, as measured by numbers taken, continue to double each year: nearly 300 in 1984-85, and 600 predicted for 1985-86. Depredator control officers in the eastern mainland counties are becoming very proficient at handling sheep growers' requests for relief from coyote problems. The coyote control program will also be expanded to handle new concerns which develop outside the chief problem areas. Coyotes have not yet been reported as taken in either Queens or Cape Breton counties, even though coyotes are known to be present there.

The decrease in fisher harvest from 48 to 31 in 1984-85 may be attributed to lower trapping pressure on bobcat and to deep snows rather than to reduced fisher populations. Fisher are believed to be holding their

own and to be reasonably stable in their limited range on Nova Scotia's eastern mainland.

UPLAND GAME AND WATERFOWL

Except for rabbits and sea ducks, the harvest of each kind of wild small game was higher in 1984-85 than in the previous year. Small game license sales were about the same during the past two years.

While rabbit populations were not at all uniform across the province, there was a definite peak in 1978-79 and a definite low in 1980-81, as indicated by our harvest estimates (see Appendix). Harvest figures then increased to 547,566 in 1982-83 and decreased to 421,388 in 1984-85, both being intermediate levels between the peak and the trough of the traditional 10-year cycle.

The grouse harvest has increased from a low of 65,514 in 1981-82 to a high of 97,427 in 1984-85.

The wild pheasant harvest of 16,335 is the highest since 1965—the year when our small game license first provided the basis for an accurate estimate. Harvests on pheasant preserves were down due to the loss of our largest and only public preserve in Kings County.

In spite of a reduced bag limit on black ducks in 1984-85 (See Table XI, Appendix) the last two years' harvest has been well above that of the previous six years. The sea duck harvest is back down to a more normal level after a bumper harvest in 1983-84. "Other ducks" and "geese" harvests both increased to levels well above those of the previous six years. Number of waterfowl hunters also was the highest in the eight-year period (slightly more than in 1978-79, the next highest year). Due to a reduced sea duck take, harvest per hunter was second to 1983-84.

Woodcock

Woodcock singing ground surveys were conducted by department personnel again; the number of singing males heard per comparable survey route was 2.6 in 1984 compared to 3.0 in 1983.

Waterfowl

Black duck brood surveys accomplished by helicopter in 1984 were compared with those conducted in past years. Although the numbers of broods

observed was much lower on flood plains (Musquodoboit, Shubenacadie, Stewiacke, Cornwallis and Annapolis), this was compensated for by increased production on coastal and inland freshwater marshes. Based on comparable units and 115 black duck broods observed, there was no change in production in 1984 from that measured in past years.

In 1984 a cooperative brood survey of inland and coastal wetlands was instituted with the Canadian Wildlife Service. These surveys will be duplicated for five years in order to measure any black duck reproduction response to decreased harvest levels in the United States.

The extended cold weather in January and February (1984) resulted in severely stressed black ducks on the Eastern Shore of the province. A contingency feeding plan was developed in cooperation with the Canadian Wildlife Service. The plan was tested and then implemented for a very short period to ice breakup. Birds were successfully introduced to grain by dropping grain from helicopters. Finally birds were fed on the ground by field staff. By these measures starvation of black ducks was held to a minimum.

During 1984-85 the following waterfowl were banded: 21 common eider; 1,214 black ducks; 54 teal; 179 mallards; 77 black mallard hybrids; 12 wood ducks and three American widgeon.

Marsh Fertilization

An intensive marsh fertilization study was initiated on a 12-acre (4.8 ha) area impounded by Ducks Unlimited on the Tobetic Wildlife Management Area. Before the proposed fertilizer treatment started, water quality, plant composition, invertebrate species and densities, herps, amphibians, mammals and birds were monitored.

Duck production on nutrient-rich habitats, including sewage treatment areas, is also being monitored.

Wetland Inventory

An inventory of wetlands with potential for fertilization revealed 196 wetlands of less than 100 acres (40 hectares) with a 1:3 or less marsh-to-watershed ratio. Detailed reconnaissance of 20 more high quality wetlands was completed.

INLAND FISHERIES

Stocking

Approximately 65,225 yearling speckled trout and 9,072 yearling rainbow trout were reared and distributed from the Kelly Lake Fish Culture Station in 1984 (See Table XIII, Appendix). These "put and take" fish are part of the overall provincial stocking program. The speckled trout were stocked as nine-inch (22 cm) yearlings in lakes which are readily accessible to the public. The rainbows were slightly larger and part of a "put, grow and take" fishery.

Assistance was also given to the Department of Fisheries and Oceans in the form of helicopter transport of salmon smolts to a remote area of Middle River, Victoria County. An introduction of smallmouth bass to Murphy Lake, Kings County was accomplished by transferring adults from Black River Lake, Kings County.

Lake and Stream Surveys

In 1984, 84 lake surveys were updated or completed, bringing our total completed lake surveys to 818. In addition 119 miles (190 km) of streams were surveyed.

pH Conditions

In cooperation with the Nova Scotia Department of the Environment, extensive chemical tests were conducted on surveyed lakes to determine pH levels and future susceptibility to acid rain.

Trout Populations

A monitoring of baseline populations of wild trout as related to habitat type was conducted by electro-seining on surveyed streams. This was done at 112 sites.

Creel Census

Creel censuses were conducted on the Tusket River, Kelly Lake, Hubley Lake, Porter's Lake, Dollar Lake, Loch Lomond and in Wreck Cove. In order to collect long-term data on specific water bodies, personal fishing record notebooks were introduced and distributed to reliable and interested anglers. The regular fishing license and salmon license stub return data were also collected and analyzed.

Habitat

An experimental fish habitat improvement project was constructed on Frenchvale Brook, Cape Breton County and monitoring of a similar 1983 project in Kings County was continued. Habitat problems on the South River, Antigonish County were investigated and a plan for corrective action has been prepared.

Calculated Catch

The calculated catch of brook trout by licensed anglers in 1984 and 1,422,357 or 17.4 fish per license.

WILDLIFE AREAS**Provincial Wildlife Parks**

The Provincial Wildlife Park at Shubenacadie enjoyed another successful year, with an estimated increase of 25,000 visitors to an all-time high of 350,000. As in previous years, the park was open from May 15 until October 15. Some changes were made in Pod No. 3 of the Environmental Centre. The Centre was once again open June 1 until August 31. A new stallion was obtained from Sable Island and is housed at Upper Clements with two mares born at Shubenacadie.

This was the final year of the Canada Goose project for Cape Breton Island; 261 young were released on the Island. Some successful nesting took place, with young being reared for the first time by former restocked birds. Park staff, in cooperation with Ducks Unlimited, successfully hatched, reared and liberated 682 woodducks. Nesting success in the wild is being noticed in increasing numbers throughout the province. In addition, 900 pheasants were hatched and distributed to various individuals for rearing and release, with fair success.

Attendance at Upper Clements was also up this year, with an estimated 125,000 visitors. Two Rivers had an estimated 75,000 visitors. Pen construction was completed at this park and the remaining exhibits were placed in them.

Wildlife Management Areas

The following areas were managed by the department:

	County	Predominant Species
Antigonish Harbour	Antigonish	waterfowl
Debert	Colchester	waterfowl
Eastern Shore Island	Guysborough-Halifax	seabirds
Kelly Lake	Halifax	salmonids
Pearl Island	Lunenburg	seabirds
Scatarie Island	Cape Breton	ptarmigan, Arctic hare
Tobeatic	(Digby, Yarmouth, Shelburne, Queens)	beaver
Minas Basin	Kings	Canada goose
Dewey Creek	Kings	waterfowl

At Manganese Mines in Colchester County the department manages an outdoor education area.

Provincial Sanctuaries

Debert—Colchester County	Blandford—Lunenburg County
Chignecto—Cumberland County	Melbourne Lake—Yarmouth County
Shubenacadie—Colchester County	Martinique Beach—Halifax County
Waverley—Halifax County	Upper Clements—Annapolis County
Sunnybrae—Pictou County	Liscomb—Halifax & Guysborough counties
Spectacle Island—Victoria County	Two Rivers—Cape Breton County

PARKS AND RECREATION DIVISION

During the 1984-85 fiscal year the Provincial Parks Program continued to play a significant role in the social and economic development of the province by providing Nova Scotians and tourists with a variety of outdoor recreational opportunities through a well-distributed system of parks.

ORGANIZATION

The Provincial Park System is administered by the Parks and Recreation Division in Debert, and by the Operations Branch from its eight subdivisions and 21 district offices throughout the province. The Division is responsible for planning the park system and its individual parks, as well

as preparing standards and procedures for development and operation. The Operations Branch is responsible for park maintenance, operation, policing, and, under guidance from Parks Division Staff, most capital construction. The capital budget is administered by the Parks Division which also manages large construction projects.

THE PARK SYSTEM

In 1984, 19 campgrounds and 81 beach and picnic parks were provided for the public. Additional picnic facilities were available at Shubenacadie Wildlife Park, Two Rivers Wildlife park and at Balmoral Grist Mill. Total operational parkland equalled 16,915 acres (6 846 ha), with an additional 24,962 acres (10 102 ha) held in reserve for future expansion. During 1984-85, properties totalling 58 acres (23 ha) were acquired for park purposes.

Provincial camping parks opened on May 18, and remained open until October 9 (Thanksgiving Day). Camping fees were set at \$6.00 per night, and firewood was sold at \$1.00 per bundle. Day-use facilities were available to the public at no charge. Total revenue from camping permits was \$234,211.

Park Use

A summary of 1984-85 campground user statistics shows that the park system's 1,457 individuals campsites accommodated an estimated 99,541 persons for 46,000 party nights--down slightly from the previous year. Visitors from other provinces and from the United States slightly outnumbered Nova Scotians. The estimated average number of campers per permit was 2.88, and their average length of stay was 1.77 nights.

Projected Planning and Development

Although administered separately within the Parks and Recreation Division, Parks planning and development are closely interrelated when they entail projects funded for implementation within the fiscal year.

The total divisional budget for planning and development and administration was \$2,379,000. Of this, \$296,500 was allocated to administration, \$318,000 to planning and related programs, \$1,575,200 to park development and coordination and \$189,300 to the parks workshop

for materials and staffing. The requirements for planning inputs ranged from site assessments through development of alternative concepts to preparation of detailed site development plans. As the following list illustrates, the developments varied from minor projects to complex construction:

Park	County	Development
Pomquet	Antigonish	Vehicle control and beach access boardwalk.
Caribou	Pictou	New day-use parking lot
Tor Bay	Guysborough	Construction of day-use park
Black Property	Cumberland	Initial development of new campground
Lewis Lake	Halifax	Initial development of handicapped picnic and fishing area
Long Lake	Halifax	Park access road (partially developed)
Peggys Cove	Halifax	Viewing area for deGarthe Monument
Cole Harbour	Halifax	Construction of road, parking area, beach access boardwalk and dune rehabilitation
Dollar Lake	Halifax	Construction of access road to day-use area
Lawrencetown	Halifax	Construction of parking area, vehicle control, boardwalk access and dune rehabilitation
Bear River	Digby	Construction of look-off
Dominion Beach	Cape Breton	Dune rehabilitation
Petersfield	Cape Breton	Parking lot construction

Near-Urban Provincial Park

In 1984-85 the Province initiated a major program to improve provincial park opportunities in the vicinity of its two major near-urban areas: Dollar Lake, Long Lake and Cole Harbour/Lawrencetown in the Halifax-Dartmouth metropolitan area, and Petersfield on a historic property in industrial Cape Breton.

Facilities for Handicapped Persons

The Division has an ongoing program to improve access for handicapped persons in provincial parks. In 1984-85, development began on a major facility in Lewis Lake Provincial Park. Upon completion this will enable participation in fishing, picnicking, viewing and related activities.

Beach and Shoreline Protection

Dune restoration and stabilization work was undertaken at Melmerby Beach (Pictou County), Sand Hills Beach (Shelburne County), Martini-que Beach (Halifax County) and Dominion Beach (Cape Breton County.)

NATURAL HISTORY RESOURCES

Work has continued on *Natural History of Nova Scotia*, a two-volume report written with the Nova Scotia Museum to aid the Division in preserving and interpreting our natural history resources. In 1983 a draft was distributed for comment; publication is planned for 1985-86.

INTERPRETATION

Input to the Department of Tourism's *Nova Scotia Treasure Guide* will help residents and tourists make more effective use of the Provincial Park System. In addition the department cooperated with Sport Nova Scotia in providing weekly radio reports on ski conditions at Five Islands Provincial Park, Beaver Mountain Provincial Park and other non-park areas. This stimulated a marked increase in winter useage of trails in these two parks.

Inter-agency Liaison

The Division continued to serve on the Parks Standing Committee appointed by the Parks, Heritage Resources and Outdoor Recreation Subcommittee of the Deputy Ministers' Committee on Land Use Policy. Representing Lands and Forests, Education, Recreation and Tourism, the Committee addressed a coordination of related departmental programs.

Action Requests

An estimated one-quarter of staff time was spent in responding to a wide

variety of requests, proposals, and complaints. In response to these requests, site visits were made and reports prepared.

LAND SERVICES BRANCH

The Land Services Branch consists of the following: the Surveys Division, the Land Acquisition and Registry Division, and the Provincial Crown Lands Record Centre.

Surveys Division. The primary objective of the Surveys Division (424-5020) is to survey, monument, and map the Crown lands administered by the department and to maintain surveyed Crown land boundaries. In addition, it has the following secondary objectives: to survey lands for purchase or expropriation; to provide a drafting and mapping service in support of departmental programs; to survey lands which the department wishes to protect for environmental, recreational, or cultural purposes; to provide a surveying service to other government departments or agencies; and to acquire aerial photography.

Land Acquisition and Registry Division. The Land Acquisition and Registry Division (424-4267) is responsible for the acquisition and disposal of Crown lands administered by the Department of Lands and Forests and acts on behalf of other departments and agencies in the acquisition and disposal of land. The division prepares all legal documentation related to deeds, leases, grants, licenses, certificates, and letters of authority.

Necessary legal and other documentation for the Beaches Preservation and Protection Act, Land Titles Clarification Act, Land Holdings Disclosure Act, and Parks Development Act are prepared by the division. A large number of expropriations are carried out in co-operation with the expropriating authority.

All quieting of titles actions are referred to the division prior to court proceedings to determine if the Department of Lands and Forests has an interest in the action.

The Registry and Research Section of the division acts as custodian for all Crown land records dating back to 1730. Thousands of inquiries from the public related to land title problems are handled annually.

The division is responsible for the investigation and settlement of claims to ungranted land.

Provincial Crown Lands Record Centre. The Provincial Crown Lands Record Centre, 45 Alderney Drive, Queen Square, Dartmouth (424-8680) co-ordinates and consolidates information related to all provincial land

holdings for all government departments and agencies (including boards, corporations, and commissions.) It updates the Crown Lands Record and Resource Series Maps; microfilms and stores related deeds, leases and rights-of-way; and provides statistical data for departments and agencies. These data are required to coordinate acquisition and disposal of land and to develop land-use policies and plans.

On request, the Provincial Crown Lands Record Centre also provides these types of statistical data and visual-display materials to the public and to federal or municipal departments and agencies.

SURVEYS DIVISION

ADMINISTRATION

The Administration Section is made up of four persons in management and a support staff of nine. The support group is made up of secretarial services, plan examination, drafting and research groups.

Requests for surveys amounted to 156, for which orders of survey were issued to field staff. During the period, 138 returns of survey were received from the field, and 195 survey plans were inspected, approved, processed and filed.

Fifty-nine plans and descriptions were prepared and approved pursuant to Section 30(1) of the Lands and Forests Act, for a total of 81 separate parcels of land. These form part of a Certificate of Release issued by the Crown asserting no interest or claim to the corresponding parcel of ungranted land. In addition, plans were drafted for 21 leases, six grants, 28 legal surveys and one miscellaneous.

During the period, documentation and mapping were prepared for the turnover of 54,423 acres (22 024 ha) of Crown land under the provision of the Nova Scotia Pulp Limited Agreement Act. Total area turned over to the company to date is 1,344,210 acres (543 983 ha).

The section negotiated a contract with Atlantic Canada Airborne Sensing of Amherst, Nova Scotia for vertical color aerial photography covering the northern part of Cape Breton Island.

The Surveys Division provided inspection of condominium plans on behalf of the Registrar of Condominiums. During the period, plans were inspected for four townhouses and 16 apartments consisting of 362 units.

CROWN LAND SURVEYS

The total area of Crown land surveyed during the year was 23,592 acres (9 5477 ha). This required 200 miles (322 km) of boundary line, 149 miles (240 km) of trial line and 151 miles (243 km) of tie line to the Nova Scotia Control Survey, and the placing of 878 survey monuments. To date, Crown land surveyed and monumented totals 3,449,154 acres (1 395 825 ha), less 58 acres (23 ha) surveyed out of Crown holdings, for a total of 3,449,096 (1,395 802 ha).

Distribution of Crown land surveyed during 1984-85:

County	Area in Acres	Hectares
Cape Breton	2,009	813
Colchester	7,823	3 166
Cumberland	592	240
Digby	72	29
Guysborough	8,223	3 328
Halifax	948	384
Hants	251	102
Inverness	1,630	660
Pictou	27	11
Queens	777	314
Richmond	821	332
Shelburne	46	19
Victoria	373	151
TOTAL	23,592	9 549

Related survey work includes three site surveys for construction purposes, two lots surveyed within the Land Titles Clarification areas, two surveys taking cross-sections on beaches for assessment of build-up and erosion, setting of targets on survey monuments for control of mapping from aerial photographs, surveys for leases, conveyances, proposed purchases, trades, boundary disputes, rights-of-way, trespass, and investigation of claims.

Boundary Line Maintenance

During the period, 310 miles (499 km) of boundary line were renewed by Surveys Division staff and 551 survey monuments replaced. Operations staff assisted in the program and renewed 235 miles (378 km) of boundary and replaced 295 monuments.

In total, 545 miles (877 km) of boundary were maintained and 864 survey monuments replaced.

SPECIAL PROJECTS SURVEYS

The Special Projects Surveys Section is responsible for surveys which generally fall outside the scope of the Crown Land Surveys program. This includes engineering surveys, surveys for land protection, purchases and expropriations.

During the year, 49 Special Projects Surveys were completed, including surveys for the Department of Government Services, Industrial Estates, Department of Transportation, as well as for the Department of Lands and Forests.

MAPPING

The Mapping Section is composed of three groups: Photogrammetry, Cartography and Reproduction.

Photogrammetry

This section consists of two photogrammetrists who operate an A-8 stereographic plotter, co-ordinograph, digitizer and computation equipment. Mapping in manuscript form was completed for four sites in the province. The areas are: Annabelle, Blacks Point Extension, Cumberland County - 1:1 200 mapping; Rainbow Haven, Halifax County - 1:20 000 mapping; Anderson Interval, Halifax County - 1:2 400 planimetric mapping, and Long Lake Watershed Park, Spryfield, Halifax County - 1:1 200. Quality inspection of aerial photography flown at 1:10 000 scale for the department, covering central and northern Inverness and Victoria counties, was carried out during a one-month period by one photogrammetrist.

Cartography

The cartographic group consists of three units employing nine drafting technicians: orthophoto mapping, special assignments and Crown land property mapping.

The Orthophoto Unit continued developing a series of Forest Inventory map sheets on the 1:10 000 orthophoto resource base. During the period, plotting was completed on 95 sheets in Richmond and Cape Breton counties, yielding a new project total of 1254 map sheets plotted. Plotting

of Crown land boundary has been completed for Cape Breton Island, with final drafting (scribing and checking) of 71 map sheets in progress.

Plotting began on portions of the Western and South Shore subdivisions adjacent to Kejimikujik National Park.

Plotting was updated on 43 map sheets and additional scribing was done on 15 map sheets completed in previous years.

One hundred twenty-five final film positives were produced by this section in conjunction with the photomechanical darkroom, enabling whiteprints to be reproduced showing the boundaries of Crown land on the orthophoto base.

The unit also carried out research and plotting of Crown grants on a section in Herring Cove at 1:12 000 scale. Checking and editing of Crown land to be shown in the 1985 edition of *A Map Book of the Province of Nova Scotia* was done. This unit has a complement of three drafting technicians.

The Special Assignment Unit produced one forest type Crown land map at a scale of 1:15 840, being a portion of Queens County. Research, tabulating and updating 220 map sheets showing Nova Scotia Pulp Limited licensed Crown land in the seven eastern counties was done; also 542 maps of the province showing Crown boundary lines were updated by plotting 95 field plots and 197 revisions.

Five special maps for spruce budworm and two for gypsy moth assessment were completed. Three large-scale topographic maps were produced by this unit from manuscripts prepared by the photogrammetric group for Dollar Lake Provincial Park, Halifax County. Forty-two other projects were undertaken and completed for various sections of Operations and Administration Divisions of the department.

Crown grant overlays were plotted for 34 Resource Maps at 1:10 000 scale on Richmond-Cape Breton County Line. Twelve of these were scribed with Crown grant overlay. Portions of 10 sheets were plotted in the Waverley/Herring Cove areas only of Halifax County.

The unit also revised the Crown land overlay for the new edition of the *Map Book* to be published during the summer of 1985 at 1:250 000 scale. Proof checking of contract work being done on this project was also carried out for public roads and place name corrections.

This unit has three drafting technicians.

The Crown Land Property Mapping Unit is responsible for identifying all lands under the administration and control of the Department of Lands and Forests.

The unit continued identifying and locating ungranted land to resolve questions raised by the Surveys Division field staff and by senior department personnel.

Interpretation and classification were done on proposed Sable Gas pipeline routes. Lands under licence for mineral exploration by the Department of Mines and Energy were plotted and watershed boundaries and areas were calculated for the St. Marys River and Sheet Harbour River Conservation areas.

One month was spent checking completeness of the 1984 aerial photography flown for the department and in making revisions to the Air Photo Index.

The section helped supply up-to-date information on Crown land for revising the 1979 edition of the *Map Book*.

Updating of the existing 1:15 850 scale map series for the province relating to Crown land administered by the department is ongoing to meet day-to-day requirements and in preparation for future input of data into a Geographic Information System.

The unit has three drafting technicians.

Reproduction

The Reproduction facility is composed of the darkroom, the air photo library, and the map reproduction units.

The Darkroom, using a photomechanical contact process vacuum frame, produces film positives, negatives and papers required by the Cartographic Group in the revision of existing plans and for the production of large-scale and orthophoto forest type mapping. In this fiscal year 265 requests were received, requiring processing of 1,575 pieces of material. Forty-six requests from the orthophoto mapping unit required processing 466 pieces of film. One hundred and twenty-five final boundary film tracings were produced at 1:10 000 scale, five forest inventory maps at 1:15 840 scale, and seven special maps for insect infestation at 1:500 000 scale for Entomological Services. Seven archive plans were produced for the Land Acquisition and Registry Division. In addition, the unit processed

69 plans of Section 30 (1) Certificates and 512 other pieces of material for various sections of the department. Fifty-four pieces of material were processed for other government departments. Twenty-six requests for camera services were also carried out beyond departmental resources. This unit has one darkroom technician.

The Air Photo Library is stocked with some 190,000 aerial photographs providing coverage of the province and dating from 1927. The general public are permitted to view the photographs only. Assistance is given in ordering prints from the National Air Photo Library, Ottawa, and from The Maritime Resource Management Service, Amherst, Nova Scotia. This service also extends to other government departments and agencies. During the past year staff dealt with approximately 1,750 requests.

The Map Reproduction Unit is administered by the same staff as the Air Photo Library and has on file almost all the film positives of the departmental map sheets, as well as reproducible orthophoto resource and large-scale urban map sheets provided by the Land Registration and Information Service (L.R.I.S.), Summerside, P.E.I. with approximately 20,500 map tracings on file.

Resource mapping for the department's Western Subdivision was completed during May of 1984 by L.R.I.S. There is now a complete set of orthophoto map tracings at 1:10 000 scale for Nova Scotia on file in topographic and planimetric format.

Originally the Map Reproduction Unit provided a reproduction service for department use only. During the past 17 years, service has gradually expanded to meet the demands of the general public and other government agencies. During the year 5,850 requests resulted in approximately 33,350 map sheets being reproduced, of which 22,875 were for departmental use. Approximately 10,500 were sold to the general public and other government agencies, generating revenue of \$44,755. This unit has a staff of two.

LAND ACQUISITION AND REGISTRY DIVISION

LAND REGISTRY AND RESEARCH SECTION

Some 2,000 requests from the public, provincial and federal government departments and department staff were processed. Some 1,000 requests required searching Land Registry and Research Records, and about 800 required a written reply, along with copies of old records.

The section recorded and/or posted 453 documents: 52 land purchases, 42 disposal documents, 22 confirmed crown papers, 55 Section 30(1) certificates, 11 grant documents, 62 lease documents, 58 rejected petitions, 27 certificates of title under the Land Titles Clarification Act, 70 survey plans and 54 contracts and agreements.

Several index sheets were revised; 299 petition numbers were issued; 42 miscellaneous drafting assignments were carried out; 26 lots were plotted on aerial photos for the Claims Section; and 56 quieting of titles files were dealt with.

Crown land general correspondence for the years 1930 to 1945 and 1977 to 1981 and Crown land correspondence for the years 1930 to 1945 inclusive were microfilmed, jacketed and indexed.

LAND ADMINISTRATION SECTION

Transfers

The administration and control of 18 parcels of Crown land was transferred to other provincial departments and to the federal government.

Grants

Twelve grants were issued involving approximately 483 acres (195 ha).

Deeds

Sixteen deeds were issued involving approximately 307 acres (124 ha).

Letters of Authority

Fifty-eight letters of authority were prepared for mineral exploration, construction purposes and a variety of domestic purposes.

Beaches

Four areas were designated as beaches under the Beaches Preservation and Protection Act.

Parks

Eight areas were designated as provincial parks under the provincial Parks Act.

Certificates -- Land Titles Clarification Act

Twenty-five Certificates of Title were issued under the Land Titles Clarification Act. These were issued in communities of:

New Road Settlement	Halifax County	7
Neils Harbour	Victoria County	13
Little Lorraine	Cape Breton County	1
Sampsons Cove - Little Anse	Richmond County	4

Certificates - Lands and Forests Act

Forty-six certificates were issued under Section 30(1) of the Lands and Forests Act, releasing the Crown's interest in 10,719.83 acres (4 338.2 ha) of land.

Tenders

Ninety-eight tenders were called during the fiscal year, including six parcels for stumpage, 27 for sawlogs, nine for Christmas trees, seven for mixedwood, one for lathwood, six for roundwood, two for house logs, one for pulpwood and 39 special tenders.

The special tenders called concerned the following parcels:

F.R.D.A. Interim Evaluation	1
Tree Planting	5
Access Roads	20
Sugar Bush	1
Radio/Tower Inspection and Maintenance	1
Rome Disc	1
Eden Rake Site Preparation	1
Manual Weeding - Training	2
White Spruce Inventory	1
Insect-Killed Stand Inventory	1
Stand Cleaning Inventory	1
Canteen Concession	2
Spray Aircraft	1
Guidance Aircraft	1
TOTAL	39

Timber Licenses

Nine timber licenses were issued for cutting Crown land stumpage.

Leases

Fifty-five leases involving approximately 2,679.3 acres (1 084.3 ha) of land were issued.

34	Campsite Leases
20	Special Leases
3	Agriculture
1	Hangar Site
1	Shooting Range
1	Girl Guides
1	Private Aircraft Landing Site
1	Sawmill Site
7	Recreation
2	Blueberry
1	Rio Algom
1	Christmas Tree
1	Airport Beacon Site
1	Fish Gear Storage Site

Trespasses

Twelve trespasses on Crown land were reported and once notice to remove an illegal camp was issued.

PROVINCIAL CROWN LANDS RECORD CENTRE

The Centre received pertinent information and documents relating to the land holdings of 20 government departments and agencies. To date, title, legal and statistical information relating to 26,349 parcels of land have been processed and the property location and land use plotted on series maps. Records of these transactions -- indentures, deeds, abstracts, certificates of title, where available -- have been microfilmed and the documents stored.

Three research projects were completed. The first project investigated provincially-owned properties in the Waverley area and included an overlay of the old mining area boundaries. The second, a cadastral report on selected provincially-owned properties in the City of Halifax, researched lands of the Technical University of Nova Scotia, Halifax Infirmary, Government House and Province House. The third project was a study of all property ownership on McNabs Island in Halifax Harbour.

A summer works project was carried out in conjunction with the Nova Scotia Land Survey Institute and the Registry of Deeds Office at Lawrencetown under the Department of Development's 1984 provincial summer employment program. The project involved two students in researching all documents on file in the Registry of Deeds office and running a comparison with those on file in the Centre. A total of 198 previously unreported documents were uncovered. This has resulted in more accurate records for the Centre and a pilot project involving all Department of Transportation records.

OPERATIONS BRANCH

The Operations Branch is responsible for implementing and maintaining the department's programs in forest fire control; protection of beaches, fish, and wildlife; enforcement of fish and game regulations; management of the Crown lands, including timber sales and forest improvement; administering programs of assistance to private woodland owners, including a management advisory service; constructing and operating provincial parks and other outdoor recreation areas; administering designated game sanctuaries; providing field assistance in planning, data collection, and other services in Crown land administration and resource education; and the gathering of statistics on forest resource use.

The branch functions through its senior staff located in Halifax and Shubenacadie and through eight geographical subdivisions.

The Provincial Forest Fire Control Centre, P.O. Box 130, Shubenacadie, N.S. B0N 2H0 (758-2232) is responsible for the acquisition, distribution, and maintenance of fire control equipment, the motor vehicle fleet and heavy equipment. The Fire Control Centre is also responsible for the operation and maintenance of the Integrated Mobile Radio System servicing user departments and agencies of government, hospitals and ambulances, fire departments, and the RCMP.

The province is divided into eight roughly equal geographical subdivisions, each staffed with a resource manager, a Crown lands forester, a private lands forester, and in most cases a biologist. Within the subdivisions are districts headed by supervisors and staffed by forest technicians, field clerks, maintenance personnel, and forestry crews. This staff implements the Operations Branch programs.

OPERATIONS FIELD OFFICES**WESTERN**

(Yarmouth, Digby, Shelburne counties)

10 Starr's Road
Yarmouth, N.S.
B5A 2T1
(742-7846)

P.O. Box 369
Shelburne, N.S.
B0T 1W0
(875-2501)

P.O. Box 367
Digby, N.S.
B0V 1A0
(245-2164)

Kemptonville Depot
Kemptonville, N.S.
B0W 1Y0
(761-2227)

SOUTH SHORE

(Queens, Lunenburg counties)

99 High Street
Provincial Building
Bridgewater, N.S.
B4V 1V8
(543-8167)

McGowan Lake Depot
Caledonia, N.S.
(242-2550)

P.O. Box 190
Milton, N.S.
B0T 1P0
(364-3462)

Wiles Lake Depot
Bridgewater, N.S.
(543-2394)

Chester Grant Depot
Chester, N.S.
(275-3574)

VALLEY

(Annapolis, Kings counties)

120 Exhibition Street
Provincial Building
Kentville, N.S.
B4N 4E5
(678-8907)

P.O. Box 130
Lawrencetown, N.S.
B0S 1M0
(584-2229)

SOUTH CENTRAL

(Halifax, Hants Counties)

Box 23, Site 2
RR#1 Waverley, N.S.
B0N 2S0
(861-2560)

Musquodoboit Harbour, N.S.
B0J 2L0
(889-2332)

Middle Musquodoboit, N.S.
B0N 1X0
(384-2290)

P.O. Box 130
Shubenacadie, N.S.
(758-3437)

Stanley Hangar
RR#1 Scotch Village, N.S.
B0N 2G0
(372-2410)

P.O. Box 190
Windsor, N.S.
B0N 2T0
(798-2016)

Lewis Lake Depot
RR#3 Armdale, N.S.
B3L 4J3
(876-2308)

NORTH CENTRAL
(Cumberland, Colchester counties)

626 College Road	P.O. Box 130
Bible Hill, N.S.	Oxford, N.S.
B2N 2R2	B0M 1P0
(895-6325)	(447-2115)

P.O. Box 428
Parrsboro, N.S.
B0M 1S0
(254-3241)

EASTERN
(Pictou, Guysborough, Antigonish counties)

11 James Street	P.O. Box 50
Provincial Building	Guysborough, N.S.
Antigonish, N.S.	B0H 1N0
B2G 1R6	(533-3503)
(863-4513)	

RR#2 Aspen	603 Maritime Building
Guysborough Co., N.S.	New Glasgow, N.S.
B0H 1E0	B2H 2P9
(522-2024)	(752-3181)

Antigonish Depot	MacLellan's Brook Depot
(863-1502)	(752-5247)

North Riverside Depot
Guysborough, N.S.
(533-3333)

CAPE BRETON NORTH
(Inverness, Victoria counties)

P.O. Box 68	P.O. Box 130
Baddeck, N.S.	Whycocomagh, N.S.
B0E 2H0	B0E 3M0
(295-2554)	(765-2339)

CAPE BRETON SOUTH

(Richmond, Cape Breton counties)

Coxheath Depot
RR#6 Sydney, N.S.
B1P 6T2
(564-6389)

Provincial Building
St. Peter's, N.S.
B0E 3B0
(535-2032)

CROWN LAND FOREST MANAGEMENT**CROWN LANDS UNDER WOOD SUPPLY AGREEMENTS****Nova Scotia Pulp Limited, Point Tupper**

The 50-year license agreement (wood supply and forest improvement) with Nova Scotia Pulp at Point Tupper involves 1,294,391 acres (523 833 ha) of Crown land in the seven eastern counties, with additional areas being added yearly. By 1986 a total of 1,500,000 acres (607 042 ha) will have been placed under company management.

In the calendar year 1984; 317,428 cords (1 150 536 m³ [stacked]) of softwood pulpwood and 70,154 cords (254 277 m³ [stacked]) of hardwood pulpwood were delivered to the mill from Crown lands. Of the softwood pulpwood 145,554 cords (527 569 m³ [stacked]) were salvaged from blowdown and insect-damaged material. In addition 1,763 cords (6 390 m³ [stacked]) of hardwood fuelwood, 122,972 board feet (695 m³) of softwood sawlogs, and 77,017 board feet (435 m³) of hardwood sawlogs, 619 cords (5 081 m³ [stacked]) of softwood pulpwood and 997 cords (3 614 m³ [stacked]) of hardwood pulpwood were produced for sale elsewhere. The agreement calls for an average or annual allowable harvest of 330,000 cords (1 196 104 m³ [stacked]).

Under the Federal-Provincial Forest Resource Development Agreement, funding was available for silvicultural treatments on Crown lands. As well, under the company's license agreement, the Province returned to the company a stumpage rebate for assistance in future forest improvement work. During 1984 the following treatments were carried out: 4,190 acres (1 696 ha) of site preparation, 4,136 acres (1 674 ha) of planting, 4,223 acres (1 709 ha) of spacing and 4,465 acres (1 807 ha) of hardwood control.

All harvesting and forest improvement proposals are submitted to the department for prior approval in the form of Annual Cutting Plans

and Annual Silviculture Plans. These show in detail the stands to be harvested or treated silviculturally. Field checks are made by department staff before decisions are made. A second check is made by field staff during operations on approved jobs.

Scott Maritimes Limited, Abercrombie Point

During the calendar year 1984, 17,913 cords (64 935 m³ [stacked]) of softwood pulpwood, 5,193 cords (18 825 m³ [stacked]) of hardwood pulpwood, 3,359,103 board feet (18 978 m³ [stacked]) of softwood sawlogs and 1,589 cords (5 760 m³ [stacked]) of fuelwood were produced from 203,000 acres (82 153 ha) under the agreement. The agreement provides for the average production of 50,000 cords (181 228 m³ [stacked]) annually.

Under an annual agreement this company received a stumpage rebate for the performance of silviculture on the licensed Crown land. During 1984, Scott Paper Company carried out the following silviculture treatments on Crown lands: 257 acres (104 ha) of planting, 196 (79 ha) of cleaning and 126 acres (51 ha) of site preparation.

All activities to be carried out on these lands must be submitted to the department for prior approval in the form of a five-year management plan. This plan must follow the guidelines agreed upon by the company and the province and show, in general, where operations are to take place, what products are to be extracted, and the proposed road construction. These areas are checked in the field by department staff and approval or otherwise is recommended. The annual cutting plan and the annual silviculture plan identify specific locations of various operations.

Hoeg Brothers Lumber Limited, Athol

This agreement signed on May 6, 1981 gives the company the right to cut stumpage on Crown land for 10 years commencing January 1, 1981. During 1984 the company received 1,002,251 board feet (5 662 m³) of softwood sawlogs, 18 cords (65 m³ [stacked]) of studwood, 44 cords (159 m³ [stacked]) of hardwood pulpwood and 982 cords (3,559 m³ [stacked]) of softwood pulpwood under this agreement.

Riversdale Lumber Company, Truro

This 10-year stumpage agreement signed in November, 1974 gave the company the right to cut 5,750,000 cubic feet (162 882 m³) of wood products

in Colchester and Halifax counties during the first five years. For the remaining five years the company is granted the right to cut a maximum of 1,150,000 cubic feet (32,564 m³) of wood per year (exclusive of any deficiency carried over from the initial five year period). In 1984 the company cut 2,601,204 board feet (73 657 m³) of softwood sawlogs, 684 cords (2 479 m³ [stacked]) of softwood studwood, 4,428 cords (16 049 m³ [stacked]) of softwood pulpwood, 1,340 cords (4 856 m³ [stacked]) of hardwood pulpwood and 490 cords (1 776 m³ [stacked]) of hardwood fuelwood from their limits.

G. Royce Heffler Limited, Lower Sackville

This license agreement allows the company to cut a maximum of 50,000 cubic feet (1 416 m³) of merchantable softwood and hardwood per year so as to include a total of 1,200,000 board feet (6 779 m³ of sawlogs during the 10-year term of the agreement (September 8, 1977 to September 7, 1987). During 1984 there was no wood cut under this agreement.

Elmsdale Lumber Company, Elmsdale

This 10-year license agreement signed on May 19, 1977 allows the company an average maximum annual cut of 240,000 cubic feet (6 796 m³) of softwood and hardwood. During 1984 the company received 422,016 board feet (2 384 m³) of softwood sawlogs under the agreement.

Ledwidge Lumber Limited, Enfield

This license agreement signed in June, 1984 gives the company the right to cut 10,000,000 board feet (56 497 m³) of stumpage on Crown lands for a period of 10 years commencing January 1, 1984. No wood was cut under this agreement in 1984.

Taylor Lumber Company, Middle Musquodoboit

This license agreement signed in October, 1984 gives the company the right to cut 10,000,000 board feet (56 497 m³) of stumpage on Crown lands for a period of 10 years commencing January 1, 1984. During 1984 no wood was cut under this agreement.

Harry Freeman & Sons Limited, Greenfield

This license agreement signed January 1, 1979 allows the company to cut 300,000 board feet (1 694 m³) of sawlog stumpage each year during the

full term of the agreement. If during any year of the term of this agreement the quantities of forest products have not been cut, the company may cut additional quantities of forest products to make up for the deficiency. The maximum quantity of forest products which may be cut by the company in any one year is 450,000 board feet (2 542 m³) of sawlog stumpage. In 1984 the company cut 63,047 board feet (356 m³) of softwood sawlogs, 228 cords (826 m³ [stacked]) of hardwood pulpwood and 129 cords (467 m³ [stacked]) of softwood pulpwood.

An amendment to the above agreement was signed on June 4, 1984 which allows the company to cut an additional 200,000 board feet (1 129 m³) of sawlogs in Shelburne County. During 1984 the company cut 288,647 board feet (1 631 m³) of softwood sawlogs.

Caledonia Woodworkers Limited, Caledonia

This agreement signed on August 14, 1979 gives the company the right to cut stumpage on Crown land for a period of 10 years, commencing January 1, 1979. During 1984, the company cut 646,600 board feet (3 653 m³) of softwood sawlogs, 5,474 board feet (31 m³) of hardwood sawlogs, 279 cords (1 011 m³ [stacked]) of softwood pulpwood and 12 cords (43 m³ [stacked]) of hardwood pulpwood.

Long Lake Lumber Limited, Shelburne

Long Lake Lumber has two stumpage agreements on Crown lands. The first was signed on December 4, 1979 and allows the company to cut stumpage on Crown land for 10 years commencing January 1, 1979. The second was signed on April 8, 1982 and gives the company the right to cut stumpage on a 1,230-acre (498-ha) block of Crown land at Middle Ohio for 10 years terminating December 31, 1991.

In 1984 the company cut 3,000 board feet (17 m³) of softwood sawlogs and 121 cords (438 m³ [stacked]) of hardwood fuelwood. The company cut 97,638 board feet (552 m³) of softwood sawlogs under the 1982 agreement.

E.M. Comeau & Sons (1977) Limited, Meteghan

This agreement signed on December 6, 1976 gives the company the right to cut stumpage on Crown land in the Blackadar Brook area of Digby County for 10 years commencing September 1, 1975. During 1984, the company cut 130,911 board feet (739 m³) of softwood sawlogs, 1,831

board feet (10 m³) of hardwood sawlogs, 280 cords (1 015 m³ [stacked]) of softwood pulpwood, 91 cords (330 m³ [stacked]) of hardwood fuelwood and 7 cords (25 m³ [stacked]) of hardwood lathwood.

Kingston Lumber & Building Supplies Limited

This license agreement grants the company the right for a term of 10 years commencing on January 1, 1982 and ending December 31, 1991 to cut 300,000 board feet (1 694 m³) of sawlogs or studwood stumpage from those stands on Crown lands designated by the Province. In 1984 there was no wood cut under this agreement.

Barrett Lumber Company Limited, Sackville

This licence agreement allows the company to harvest forest products from August, 1979 until such time as they have received 742,842 board feet (4 196 m³). There was no harvesting under this agreement during 1984.

Canxel Incorporated, East River

The 10-year stumpage and roundwood sale agreement with Canelx signed in December, 1976 calls for the Crown to supply the mill with 10,000 cords (36 246 m³ [stacked]) of wood (75 per cent hardwood) on the company's request. Also the company can extract 15,000 cords (54 368 m³ [stacked]) annually from Crown lands in the counties of Hants, Halifax, Annapolis, Kings, Lunenburg, Queens, Shelburne, Yarmouth and Digby in areas especially allocated by the Province via five-year management plans. This agreement also requires the company to submit annual cutting plans for its licensed lands.

Canxel purchased 2,083 board feet (12 m³) of softwood sawlogs, 979 cords (3 548 m³ [stacked]) of hardwood pulpwood and 497 cords (1 801 m³ [stacked]) of softwood pulpwood from the Crown.

Nova Scotia Forest Products Association Access Road Program

This program, administered by the Association, was initiated in 1967. It provides assistance to forest operators to build access roads for harvesting forest products, to carry out forest improvement work, and to improve access for firefighting. The assistance is in lieu of refunding the tax on gasoline and diesel fuel paid by forest operators for off-highway hauling.

In 1984, 178 miles (285 km) of new forest access roads were built

requiring 75,663 cubic yards of gravel and eight new bridges. Also 148 miles (237 km) of existing roads were upgraded using 14,012 cubic yards of gravel. Assistance totalled \$805,000 on 390 claims.

UNLEASED CROWN LAND

Most of the unleased Crown lands are situated in the central and western parts of the province. The larger units or blocks have been placed under management plans drawn up in consultation with the Forest Planning Branch.

Access Roads

Construction was completed on approximately 41 miles (65.6 km) of forest access roads, and maintenance carried out on approximately 240 miles (384 km).

Stand Improvements

The following stand improvement work was carried out on unleased Crown lands:

Treatment	Acres	Hectares
Planting	717	290
Cleaning	695	281
Thinning	47	19
Salvage	209	84
Weeding	1,638	662
Site Preparation	874	354
Regeneration Cutting	369	149
Remnant Removal	167	67

Forest Products Sales

Fuelwood Sales

Letters of Authority covering a maximum of 24 months are now used instead of fuelwood licenses. Subdivisions having fuelwood surplus to industrial needs sold roundwood at roadside to the many citizens requesting fuelwood. During the calendar year 11,066 cords (40 109 m³ [stacked]) of fuelwood were cut off unleased Crown land.

Timber Licenses

Six timber licenses, granting short-term cutting rights on parcels of Crown land ready to be harvested, were issued to successful tenderers following advertisement.

Sales By Tender (Roadside)

Material produced on Crown land by contracts or by department crews is usually advertised for sale by tender. The successful bidder is then granted a Letter of Authority to remove the material. During the year 52 parcels of sawlogs, pulpwood, fuelwood and studwood, etc., were sold by letter of authority to the highest bidder.

General Letters of Authority

The following types of authorization were given by letter of authority: cutting and removal of forest products, removal of aggregate material from beaches and inland deposits and quarried rock; construction of access roads; Christmas tree wreath material; short-term uses of Crown land. A total of 1,452 such letters were newly authorized.

PRIVATE LAND FOREST MANAGEMENT**INDIVIDUAL ASSISTANCE**

The Forest Resource Development Agreement was signed August 31, 1982 for a five-year period commencing April 1, 1982. The Forest Resource Enhancement on Private Lands program was implemented and funded by Canada while the province employed sufficient staff to prescribe, oversee and monitor forest management activities implemented by Canada on private lands.

The objectives of this Agreement are:

- (a) To encourage and support forest management for the purpose of endeavoring to increase the sustainable supply of softwoods to an average of 1.5 million cords (3.3 million cubic metres) annually from the forest resource and help ensure the continued viability and competitiveness of the present wood-based industry and;
- (b) to improve and increase the utilization of the forest to enhance future forest industry development opportunities.

Work assisted under the Agreement as of March 31, 1985 is shown below (Group Ventures not included):

Year	Mgmt. Plans	Roads		Bridges	Boundaries		Ponds	Silviculture	
	No.	km	Miles		km	Miles		Acres	Hectares
1982/83	115	58	93	2	130	209	18	20,353	8 240
1983/84	318	92	149	10	346	557	98	24,509	9 922
1984/85	450	82	131	14	330	528	96	40,937	16 583

At the end of the fiscal year a total of 285 applications for small private forest management plans was on file and an additional 141 applicants had plans being prepared. Department staff and forestry consultants prepared 450 plans during the 1984/85 fiscal year, bringing the total number of plans to 2,888 and placing 529,191 acres (214 247 ha) under management. These numbers do not include group ventures or former individual plans transferred to group ventures.

Three pulp and paper companies and six large landowners continued to be active.

For management plan assistance details see Table XVII and XVIII, Appendix.

GROUP FOREST MANAGEMENT

Introduction

During 1984/85 the Group Forest Management Venture Program was expanded and the momentum restored to the level of 1981/82.

This was achieved by dedicated staff and improved woodlot owner liaison, and by the signing up of six new groups with the province and with Canada. There are now 14 group companies and cooperatives whose objective is to increase the harvest from private lands by encouraging the assembly of small woodlots into larger operating areas and by providing forest management and marketing to shareholders within group service areas.

The company/cooperatives are as follows:

Groups in operation prior to 1982/83:

West Pictou Forest Owners Ltd.

North Nova Forest Owners Ltd.
Baddeck Valley Wood Producers Co-Op Ltd.
La Forêt Acadienne Ltée.
North Mountain Woodlands Ltd.
Sissiboo Forest Management Ltd.
Conform Ltd.
Athol Cooperative Ltd.

Groups commencing operations during 1984/85:

Coastal Woodlands Ltd.
Lunenburg County Forest Management Group Ltd.
East Guysborough Forest Owners Ltd.
Forchu Forest Management Company Ltd.
North Colchester Forest Cooperative Ltd.
North Inverness Forest Management Company Ltd.

As of March 31 these groups had 963 shareholders with 130,900 acres (53 000 ha) of forest lands under management. The average ownership per shareholder is 136 acres (55 ha).

The total value of activities by these groups during this year exceeded \$3,400,000. This included income from the province (operating claims), from Canada (forest improvement claims), and from wood sales of approximately \$1,400,000. Total value of activities for 1983/84 was approximately \$2,300,000.

Operating and Administration

The groups claimed \$831,807 for operating. Each group, under the direction of a Board of Directors elected by shareholders, is responsible for cruising, preparing or revising management plans, coordinating these plans into an annual operating plan, implementing the operating plan on the ground, and arranging the sale of forest products from forest improvement activities and commercial harvesting. The shareholders paid a management fee of five per cent on all wood sales (roadside price), which was credited to the group's operating costs. During 1984/85 this fee totalled \$89,839 - up from \$43,222 during 1983/84. The sale of wood cut during the last two years of the Forestry Subsidiary Agreement (1980/81 and 1981/82) and sold in 1984/85 is also included in the total management fee contribution. It is therefore evident that the group's marketing ability has improved.

This year 27,646 acres (11 188 ha) of forest lands was brought under group management, up from 4,400 acres (1 780 ha) during 1983/84. This significant increase is the result of the six new groups transferring individual forest management plans to group management, and of the group foresters being able to concentrate on preparing new plans rather than implementing plan recommendations.

Forest Improvement Activities

The group claimed \$1,185,653 from the Canadian Forestry Service for the following work (previous year shown for comparison):

	1984/85	1983/84
Roads, miles (km)	96 (155)	69 (111)
Ponds, number	23	14
Boundaries, miles (km)	122 (196)	87 (140)
Silviculture, acres (ha)	3,979 (1 610)	3,000 (1 214)

PROTECTION SERVICES

FOREST PROTECTION (FIRE)

General Fire Situation

Nova Scotia experienced a moderate fire season during 1984. A total of 446 fires burned 1,468 acres (594 ha). The province had been plagued by grass fires in mid March and April, and the forest greened up during May and early June without serious fires. The weather changed to hot and dry during July with an apparent lack of precipitation. A Proclamation prohibiting open fires was in effect from Aug. 4 to Aug. 28. The forest fire situation eased up with cooler weather and rain showers in September. However, activity picked up again in October due to a rather dry fall, particularly in southwestern Nova Scotia. Forest fires are usually caused by people or people-oriented activities. However, in 1984, a rare occurrence was a lightning storm cell crossing the province with little precipitation. This resulted in several lightning-caused fires within a 24-hour period. (For forest fire statistics see Tables XX and XXI, Appendix).

Aircraft

The makeup of the provincial aircraft fleet available for fire management during 1984 was:

Cessna 185 Sky Wagon	1
Beaver	1
Hughes 500D	3
Bell 212	1

Equipment Development

In 1984, three Bambi buckets, Model 1214, were purchased. A fire control communication monitor was purchased; installation will be completed prior to the 1985 season. This unit is connected to the main console of the Nova Scotia Integrated Radio System. Two delegates attended the Canadian Committee on Forest Fire Management workshop on forest fire equipment held at Thunder Bay in September. As a result, savings have been made in pump maintenance.

Training

Fire training began in January and included fire simulation exercises and aircraft safety. The courses consisted of classroom and field instruction. A St. John's Ambulance First Aid Course was held for staff at the Provincial Depot. Extension training was provided to Volunteer Fire Departments and to the National Parks staff at Kejimikujik National Park. A slide tape presentation, "Wildfire Fighting", was purchased from the National Fire Protection Association.

Fire Prevention

Fire prevention activities included newspaper ads and television and radio spots, by both Lands and Forests and industry, and by distribution of printed materials. A third "Smokey Bear" suit was acquired in 1984. "He" made 50 appearances, ranging from one-day to week bookings at exhibitions, fairs and community parades.

HUNTER SAFETY EDUCATION

The Hunter Safety Program kept instructors extremely busy especially during September, October and November. During the year 42 additional instructors were trained.

Live-firing continued at several ranges as part of the instructional process; 6,219 first-time firearm hunters took the course with 2,819 other firearm hunters and 243 bowhunters, for a total of 9,281 being tested.

This was the first fatality-free year in a long time, a fact that can be attributed mainly to the quality of instruction received from the Hunter Safety Course and to the mandatory requirement to wear Hunter Orange while hunting.

Statistics on numbers tested in 1984 may be found in the Appendix, Table XXII.

LAW ENFORCEMENT (1984)

General

Approximately 110 Operations personnel are involved with all aspects of enforcement administering to Parts I, II and III of the Lands and Forests Act, Parks Act and Regulations, Beaches Act and to a small extent the Forest Improvement Act. The RCMP provided assistance in the enforcement of the foregoing acts as well.

Our staff have enforcement authority under the Snow Vehicles Act, the Migratory Birds Convention Act and the Fisheries Act, with enforcement work being done as time permits.

Part I - Crown Lands

Only one person was charged for theft of products from Crown land in 1984. There appears to be a continuing decline in this area.

Part II - Conservation of Forests

There were 20 charges laid, mostly for burning without a permit. To help make the public more fire prevention-conscious, considerable effort was put into investigating fire origins.

Part III - Game & Regulations

To reduce illegal hunting activity our wardens, assisted by the RCMP and Federal Fisheries Officers, put increased time and effort into law enforcement. A substantial increase in deer "jacking" was noticed, with an increase of 43 additional jacking-related charges being laid. In 1983 there were 90 prosecutions; in 1984 there were 133. Out of these 67 were for jacking, compared to 49 in 1983.

Parks Act & Regulations

No serious problems occurred in Provincial Parks in 1984, but 76 charges were laid for various infractions. Cooperation between the RCMP and our staff remained very good throughout the province.

Beaches Preservation & Protection Act

Many beaches throughout the province are regularly patrolled to prevent theft of material and damage by recreational vehicles. The latter is a serious threat to our beaches.

Migratory Bird Convention Act

Much of the enforcement of this Act is conducted by the RCMP. Only seven charges were laid in 1984.

Snow Vehicles Act

Little if any enforcement is done with respect to this Act unless wildlife is involved.

For a breakdown of charges and offences in all above categories see Table XXIII, Appendix.

TABLE I
COMPARATIVE TABLE OF TIMBER PRODUCTS
PROVINCE OF NOVA SCOTIA

CALENDAR YEARS 1983 AND 1984

Product	Unit	1983	1984	Increase	Decrease
Lumber, Softwood	Mfbm.	168,289	185,542	17,253	--
Lumber, Hardwood	Mfbm.	6,857	6,240	--	617
Pulpwood	m ³ (stacked)	1,999,372	3,726,392	1,727,020	--
Pulp Chips, Residue	m ³ (stacked)	277,708	575,639	297,931	--
Railway Ties	Mfbm.	1,566	1,769	203	--
Mine Packs	Mfbm.	2,590	2,220	--	370
Pit Props +	m ³ (stacked)	27,373	4,710	--	22,663
Poles & Piling					
Laths	x 10 ³ pieces	4,373	7,565	3,192	--
Shingles	Squares	810	604	--	206
Staves & Headings	Mfbm.	283	87	--	196
Boxwood	Mfbm.	2,550	3,288	738	--

TABLE II - PROVINCIAL CROWN LAND FOREST PRODUCTION
CALENDAR YEAR 1984 (COMMON UNITS OF MEASURE)

Comm.	Sawlogs ¹		Pulpwood				Fuelwood				Other Products ^{2,3}				Whole Tree ⁴ Chip	
	Sawlog Mfms	Hardwood Mfms	Softwood m ³ (stacked)	Softwood Cords	Hardwood m ³ (stacked)	Hardwood Cords	Softwood (stacked) m ³	Hardwood (stacked) m ³	Softwood (stacked) Cords	Hardwood (stacked) Cords	Softwood m ³	Cords	Hardwood m ³	Cords	Tons	Cords
Pictou	..	..	142 024	(39 184)	35 427	(9 774)	156	(43)	484	(134)	..	..	..	..	131	(165)
Antigonish	..	..	56 714	(15 467)	12 115	(3 342)	..	..	2 140	(593)	6	(3)	..	..	..	..
Guysborough	..	6	150 866	(41 623)	31 611	(8 721)	1 203	(332)	2 501	(600)	..	..	..	..	..	..
Colchester	3 033.3	..	18 346	(5 061)	6 802	(1 877)	..	..	3 835	(1 054)	..	..	..	..	..	..
Cumberland	995.3	..	4 061	(1 120)	716	(197)	..	..	8 029	(2 215)	..	..	..	..	..	..
Hants	159.6	19.8	4 190	(1 156)	1 231	(340)	..	..	..	..	1 651	(729)	..	..	..	..
Halifax	3 153.0	..	19 402	(5 353)	6 055	(1 671)	..	..	6 209	(1 713)	..	..	..	..	..	..
Annapolis	1 149.3	2.3	2 136	(389)	655	(181)	..	..	2 621	(723)	..	..	..	..	..	..
Kings	53.4	..	2 325	(641)	6 216	(1 715)	..	..	190	(55)	..	..	..	..	..	..
Queens	797.5	34.1	2 144	(591)	2 449	(676)	..	..	2 117	(584)	..	..	..	..	..	..
Lunenburg	124.3	31.3	2 087	(576)	1 101	(304)	786	(277)	1 853	(511)	..	..	..	..	..	..
Digby	288.2	15.4	1 740	(480)	..	..	..	..	1 810	(499)	..	..	16	(7)	..	..
Yarmouth	430.4	80.0	17 051	(4 704)	..	..	..	..	7 371	(2 034)	..	..	19	(8)	..	..
Shelburne	1 826.3	..	..	..	..	..	..	..	1 015	(280)	..	..	..	..	..	..
Inverness	3.2	..	64 660	(17 819)	29 940	(8 366)	..	..	936	(258)	..	..	..	..	51 942	(25 976)
Victoria	..	..	61 742	(17 034)	31 327	(8 643)	..	..	946	(261)	..	..	..	..	..	..
Cape Breton	..	..	12 433	(3 430)	4 598	(1 269)	..	..	533	(147)	..	..	..	..	49 797	(24 896)
Richmond	..	..	7 243	(1 998)	..	..	94	(26)	371	(137)	..	..	..	..	..	..
Total	12 019.8	182.9	569 164	(157 030)	170 243	(46 969)	2 219	(618)	43 178	(11 933)	1 657	(732)	35	(113)	102 080	(51 040)

* m³ (stacked) based on 8 ft. (2.44 m) bolts

¹ Sawlogs include all products to be sawn

^{2,3} Products not elsewhere specified converted to m³ solid wood

⁴ Whole tree chips are all DBH (therefore considered nonmerchandise)

TABLE III
PROVINCIAL CROWN LAND FOREST PRODUCTION
CALENDAR YEAR 1984
(CUBIC METRES AND CUBIC FEET SOLID WOOD)

County	Softwood		Sawlogs		Hardwood		Softwood		Pulpwood		Hardwood	
	m'	Cu.Ft.	m'	Cu.Ft.	m'	Cu.Ft.	m'	Cu.Ft.	m'	Cu.Ft.	m'	Cu.Ft.
Pictou	--	--	--	--	--	--	86 546	3,056,346	--	--	21 588	762,374
Antigonish	--	--	--	--	--	--	34 560	1,220,476	--	--	7 382	260,693
Guysborough	34	1,201	--	--	--	--	91 934	3,246,621	--	--	19 263	680,267
Colchester	17 175	606,671	--	--	--	--	11 180	394,818	--	--	4 145	146,379
Cumberland	5 637	199,069	--	--	--	--	2 475	87,403	--	--	436	15,397
Hants	906	31,995	112	3,955	--	--	2 553	90,158	--	--	750	26,486
Halifax	17 855	630,544	--	--	--	--	11 823	417,526	--	--	3 690	130,311
Annapolis	6 509	229,863	13	459	--	--	1 301	45,944	--	--	399	14,090
Kings	302	10,665	--	--	--	--	1 417	50,041	--	--	3 787	133,767
Queens	4 517	159,516	193	6,816	--	--	1 307	46,156	--	--	1 492	52,689
Lunenburg	704	24,861	176	6,215	--	--	1 272	44,920	--	--	671	23,696
Digby	1 632	57,683	87	3,072	--	--	1 060	37,433	--	--	--	--
Yarmouth	2 437	86,062	453	15,998	--	--	10 390	366,920	--	--	--	--
Shelburne	10 343	365,260	--	--	--	--	--	--	--	--	--	--
Inverness	18	636	--	--	--	--	39 402	1,391,469	--	--	18 245	644,316
Victoria	--	--	--	--	--	--	37 624	1,328,680	--	--	19 090	674,157
Cape Breton	--	--	--	--	--	--	7 576	267,544	--	--	2 802	98,952
Richmond	34	1,201	--	--	--	--	4 414	155,879	--	--	--	--
Total	68 107	2,405,178	1 034	36,515	--	--	346 834	12,248,338	--	--	103 740	3,663,547

Conversion Factors: 1 mfbm: 200 cubic feet: 5.663 36 m' solid wood equivalent
 1 cord 8 foot bolts: 3.624 56 m' (stacked): 2.208 72 m' solid wood
 1 m' (stacked) x 0.609 375 = 1 m' solid wood

TABLE III (cont'd)
PROVINCIAL CROWN LAND FOREST PRODUCTION
CALENDAR YEAR 1984
(CUBIC METRES AND CUBIC FEET SOLID WOOD) (Continued)

County	Fuelwood			Other Products			Total		
	Softwood m ³	Softwood Cu.Ft.	Hardwood m ³	Softwood m ³	Softwood Cu.Ft.	Hardwood m ³	Softwood Cu.Ft.	Hardwood m ³	Hardwood Cu.Ft.
Pictou	95	3,355	294	..	..	..	86 641	3,059,701	21 882
Antigonish	..	..	1 309	46,227	4	141	..	1,220,617	8 691
Guysborough	733	25,886	1 524	53,820	..	..	92 701	3,273,708	20 787
Colchester	..	..	2 331	82,318	..	..	28 359	1,001,489	6 476
Cumberland	..	..	4 893	172,795	..	..	8 112	296,473	5 329
Hants	..	..	..	..	1 651	58,305	..	180,458	862
Halifax	..	..	3 784	133,631	..	..	29 678	1,048,070	7 474
Annapolis	..	..	1 597	56,398	..	..	7 810	275,808	2 009
Kings	..	..	122	4,308	..	..	1 719	60,706	3 909
Queens	..	..	1 290	45,556	..	..	5 824	205,673	2 975
Lunenburg	479	16,916	1 129	39,870	..	..	2 455	86,698	1 976
Digby	..	..	1 103	38,952	..	..	2 692	95,067	1 206
Yarmouth	..	..	4 492	158,634	..	16	12 827	452,982	4 964
Shelburne	..	..	618	21,824	..	..	10 343	365,260	618
Inverness	..	..	570	20,129	..	..	19 420	1,392,105	18 815
Victoria	..	..	576	20,341	..	..	37 624	1,328,680	19 666
Cape Breton	..	..	325	11,477	..	..	7 576	267,544	3 127
Richmond	57	2,013	347	12,254	..	..	4 505	159,093	347
Total	1 364	48,169	26 304	928,916	1 655	58,446	417 980	14,760,132	131 113

Conversion Factors: 1 mfbm, 200 cubic feet; 5 663 36 m³ solid wood equivalent
 1 cord 8 foot bolts, 3 624 56 m³ (stacked); 2 208 72 m³ solid wood
 1 m (stacked) x 0 609 375 = 1 m solid wood

TABLE IV
PROVINCIAL CROWN LAND FOREST PRODUCTION
CALENDAR YEAR 1984
CUBIC MEASURE SOLID WOOD ROUNDWOOD LEVEL, PER HECTARE AND PER ACRE

County	PROVINCIAL CROWN LAND			PROVINCIAL CROWN FOREST PRODUCTION			PRODUCTION PER UNIT OF AREA		
	To March 31, 1983	Hectares	Softwood	Softwood	Hardwood	Hardwood	Total	m ³ /ha	cu.ft./acre
	Acres		m ³	Cu.Ft.	m ³	Cu.Ft.	m ³		
Pictou	(102,239)	41 392	86 641	3,059,701	21 822	772,756	108 523	2.62	(37.50)
Anigonish	(48,682)	19 709	34 564	1,220,617	8 691	306,920	43,255	2.19	(31.40)
Guyshorough	(498,915)	201 990	92 701	3,273,708	20 787	734,087	113 488	0.56	(8.03)
Colchester	(125,683)	50 884	28 359	1,001,490	6 476	228,698	34 835	0.68	(9.79)
Cumberland	(152,675)	61 812	8 112	286,473	5 329	188,192	13 441	0.22	(3.11)
Hants	(93,161)	37 717	5 110	180,458	862	30,441	5 972	0.16	(2.26)
Halifax	(460,508)	186 440	29 678	1,048,070	7 474	263,942	37 152	0.20	(2.85)
Annapolis	(110,090)	44 571	7 810	275,808	2 009	70,947	9 819	0.22	(3.15)
Kings	(78,588)	31 817	1 719	60,706	3 909	138,045	5 628	0.18	(2.53)
Queens	(143,090)	57 931	5 824	205,673	2 975	105,061	8 799	0.15	(2.17)
Lunenburg	(91,543)	37 062	2 455	86,698	1 976	69,782	4 431	0.12	(1.71)
Digby	(184,560)	74 721	2 692	95,067	1 206	42,589	3 898	0.05	(0.74)
Yarmouth	(269,145)	108 966	12 827	452,982	4 964	175,302	17 791	0.16	(2.33)
Shelburne	(257,948)	104 432	10 343	365,260	618	21,824	10 961	0.10	(1.50)
Inverness	(302,789)	122 587	39 420	1,392,105	18 815	664,446	58 235	0.47	(6.79)
Victoria	(336,564)	136 261	37 624	1,328,680	19 666	694,499	57 280	0.42	(6.01)
Cape Breton	(119,146)	48 237	7 576	267,544	3 127	110,429	10 703	0.22	(3.17)
Richmond	(96,852)	39 211	4 505	159,093	347	12,254	4 852	0.12	(1.77)
TOTAL	(3,482,178)	1 405 740	417 960	14,760,133	131 113	4,630,216	549 073	0.39	(5.58)

TABLE V
SPRUCE BUDWORM DEFOLIATION IN NOVA SCOTIA
1980 TO 1984

DEFOLIATION CATEGORIES (hectares x 1,000)					
Sector of Province	Year	Light	Moderate	Severe	
Mainland					
Cumberland	1980	3.2	66.0	102.1	
Colchester	1981	40.8	31.8	69.0	
	1982	13.6	92.0	48.9	
	1983	6.4	18.9	158.6	
	1984	15.9	23.5	13.7	
Northumberland	1980	13.8	1.2	7.3	
Coast	1981	13.5	11.0	1.6	
	1982	11.0	28.7	0.8	
	1983	21.8	16.5	38.2	
	1984	4.2	9.3	12.2	
Annapolis	1980	40.1	36.0	21.5	
Valley	1981	46.9	42.0	47.3	
	1982	0.0	4.1	0.0	
	1983	34.7	14.4	29.9	
	1984	6.3	0.0	0.0	
Cape Breton	1980	47.4	121.1	361.3	
Island	1981	31.8	71.4	292.9	
	1982	12.3	0.4	0.0	
	1983	0.5	2.2	15.5	
	1984	0.0	0.0	0.0	
Total area of all categories of defoliation	1980	1981	1982	1983	1984
(thousands of hectares)	1 380	700	212	358	85
(thousands of acres)	3,410	1,730	524	885	210

TABLE VI
SPRUCE BUDWORM EGG-MASS INFESTATION COUNTS
PER 10m² IN NOVA SCOTIA FROM 1976 TO 1984

County	Year								
	1976	1977	1978	1979	1980	1981	1982	1983	1984
Richmond	430	649	364	403	423	15	2	4	8
Cape Breton	1608	524	437	349	378	17	7	2	12
Inverness	1319	758	389	316	308	50	151	13	19
Victoria	1832	771	435	647	258	27	50	14	10
Cumberland	191	71	218	307	235	197	622	203	203
Colchester	104	23	165	52	10	22	52	34	312
Pictou	29	125	140	214	116	13	103	68	333
Antigonish	196	182	252	65	136	79	228	92	60
Guysborough	6	78	0	8	0	8	19	4	65
Kings	12	25	73	183	245	86	245	228	38
Annapolis	18	27	121	165	224	72	331	29	3
Hants	6	6	0	19	61	12	5	11	5
Digby	11	20	0	3	86	36	42	9	7
Halifax	0	5	0	0	30	24	21	8	10
Lunenburg	0	6	9	16	10	15	20	6	9
Shelburne	0	12	0	8	28	4	2	2	0
Queens	4	4	0	0	0	6	11	1	5
Yarmouth	16	20	0	28	29	4	4	6	1

TABLE VII
FISH AND GAME LICENSE SALES BY COUNTY 1984-85

County	Resident Big Game	Non-Resident Big Game (reduced fee)	Resident Small Game	Non-Resident Small Game (reduced fee)	Senior Citizen	Resident Fishing	Non-Resident Fishing	Resident Salmon (reduced fee)	Non-Resident Salmon	Furbearer
Annapolis	2,340	59 (3)	794	27 (1)	422	2,282	80	63 (2)	8	208
Antigonish	2,047	51 (6)	678	3 (0)	264	1,876	77	88 (6)	19	137
Colchester	5,393	160 (2)	1,677	19 (1)	728	4,942	154	314 (24)	99	300
Cumberland	5,706	202 (6)	1,748	25 (0)	895	4,295	254	182 (9)	28	480
Digby	3,090	35 (7)	1,103	4 (3)	520	1,768	57	17 (0)	0	145
Guysborough	2,173	57 (4)	889	2 (0)	315	1,983	166	285 (20)	73	233
Halifax	19,555	97 (2)	7,503	19 (2)	1,598	20,182	274	1,468 (55)	80	469
Hants	4,378	23 (1)	1,263	7 (0)	515	4,129	38	175 (5)	28	257
Kings	4,380	15 (1)	1,803	8 (1)	614	4,878	41	126 (4)	1	256
Lunenburg	5,968	31 (0)	1,963	2 (0)	828	5,589	91	571 (44)	35	253
Pictou	5,627	110 (2)	1,590	9 (0)	610	6,969	105	216 (11)	17	348
Queens	2,217	45 (2)	868	8 (1)	364	1,642	137	247 (9)	76	152
Shelburne	3,293	31 (1)	1,628	2 (0)	434	1,131	57	28 (0)	0	134
Yarmouth	3,814	71 (8)	1,516	15 (4)	589	2,060	100	107 (3)	4	237
Cape Breton	8,907	39 (1)	3,690	4 (1)	769	10,767	137	568 (23)	8	145
Inverness	2,970	139 (14)	1,313	10 (2)	273	3,102	464	181 (13)	255	166
Richmond	1,585	43 (6)	841	5 (0)	257	1,126	32	83 (8)	8	108
Victoria	894	23 (1)	512	3 (0)	97	788	92	70 (4)	22	71
TOTALS	84,337	1,231 (67)	31,379	172 (16)	10,092	79,509	2,356	4,789 (240)	761	4,099
		1,298		188				5,029		

TABLE VIII
NOVA SCOTIA WILD FUR EXPORTS, VALUE TO TRAPPER 1982-83 TO 1984-85

Species	1982-83			1983-84			1984-85		
	Number Exported	Average Price	Total Value	Number Exported	Average Price	Total Value	Number Exported	Average Price	Total Value
Beaver	2,663	\$17.34	\$46,176	2,141	\$19.80	\$42,392	3,281	\$31.40	\$103,023
Muskrat	42,929	3.43	147,246	41,162	4.90	201,694	43,466	4.15	180,364
Otter	450	52.56	23,652	426	57.01	24,286	543	56.98	30,940
Mink	3,622	16.75	60,669	3,172	18.40	58,365	3,404	24.11	82,070
Lynx	3	229.28	690	5	239.50	1,198	6	429.62	2,578
Bobcat	1,164	144.77	168,512	1,041	102.99	107,213	1,091	149.03	162,592
Fox	2,320	52.84	122,589	2,003	60.36	120,901	2,435	52.82	128,617
Raccoon	8,511	15.31	130,303	6,042	15.85	95,766	7,797	20.60	160,618
Weasel	1,215	1.05	1,276	962	1.44	1,385	1,105	1.33	1,470
Squirrel	8,554	.71	6,073	7,292	.37	2,698	9,661	0.43	4,154
Skunk	19	3.03	58	10	2.98	30	12	1.46	18
Fisher	25	102.25	2,556	48	60.72	2,915	31	116.05	3,598
Black Bear	30	45.32	1,360	28	20.19	565	83	37.93	3,148
Coyote	72	22.70	1,634	157	28.76	4,515	130	34.14	4,438
			\$712,794			\$663,923			\$867,648

TABLE IX
NOVA SCOTIA WILD FUR EXPORT* STATISTICS, 1932-33 TO PRESENT

Year	Beaver*	Wolver	Muskrat	Mink (Wild)	Raccoon	Bobcat	Lynx	Fox	Weasel	Skunk	Squirrel	Bear*	Fisher	Coyote
1932-33		53	13,161	2,386	996	794	16	1,926	8,205	793	107	10		
1933-34		78	17,341	2,769	1,423	775	18	1,815	6,135	262	548	7		
1934-35		86	38,114	3,233	1,224	703	2	1,838	6,469	471	420	8		
1935-36		107	34,019	3,122	1,027	589	8	1,714	9,790	349	10,115	3		
1936-37		79	48,135	3,382	1,827	815	5	2,063	15,448	451	25,949	17		
1937-38		105	51,349	4,082	1,678	452	15	1,291	9,472	317	12,441	10		
1938-39		141	56,898	6,371	1,145	498	30	1,229	7,541	168	46,369	2		
1939-40		77	48,860	10,598	1,315	488	62	1,154	7,729	97	9,361	3		
1940-41		95	49,505	11,261	1,026	553	101	1,316	3,308	--	12,907	--		
1941-42		162	54,694	12,309	1,555	1,119	130	2,665	6,476	271	9,762	132		
1942-43		158	49,951	15,553	1,802	862	62	2,574	4,291	90	23,010	132		
1943-44		186	47,733	7,460	1,803	1,193	44	3,659	9,464	143	17,577	161		
1944-45	2,789	169	42,237	6,173	1,985	1,011	39	3,408	8,468	120	26,343	278		
1945-46	No Season	255	49,653	7,396	2,298	812	11	3,589	9,719	107	95,052	386		
1946-47	No Season	264	58,269	10,108	1,719	554	18	2,249	7,632	67	69,594	373		
1947-48	No Season	245	50,600	13,002	1,896	389	27	1,232	7,658	39	51,375	409		
1948-49	No Season	287	52,052	13,586	1,210	330	34	957	5,852	27	147,970	348		
1949-50	No Season	260	39,046	13,552	1,264	315	17	826	6,527	26	24,516	318		
1950-51	No Season	174	35,169	2,121	2,194	--	70	1,964	6,922	118	290,228	248		
1951-52	No Season	210	41,988	18,015	2,129	336	23	1,632	7,023	13	43,531	219		
1952-53	2,479	208	55,214	1,964	2,082	263	5	904	5,864	11	109,482	195		
1953-54	3,075	174	57,185	2,253	1,852	248	10	553	5,509	8	82,743	169		
1954-55	4,445	212	40,441	2,857	1,253	178	20	443	3,771	3	41,757	156		
1955-56	3,113	232	40,756	2,111	1,354	332	51	405	2,245	1	6,706	172		
1956-57	5,437	281	36,308	2,867	1,317	142	17	318	3,671	41	13,620	226		
1957-58	3,002	258	26,459	2,066	1,266	261	32	657	1,898	364	3,468	164		
1958-59	5,323	280	16,706	1,730	527	214	28	269	579	1	1,202	239		

* Figures for beaver and bear are not true export statistics. Figures for beaver represent the actual harvest tally. Figures for bear are those of bear bountied up to and including 1964; after 1964 they represent calculated bear kill from hunter and trapper reports. Coyote figures are from carcass collection sheets.

TABLE IX
NOVA SCOTIA WILD FUR EXPORT* STATISTICS: 1932-33 TO PRESENT (Continued)

Year	Beaver*	Otter	Muskrat	Mink (Wild)	Raccoon	Bobcat	Lynx	Fox	Weasel	Skunk	Squirrel	Bear*	Fisher	Coyote
1959-60	2,791	185	11,906	1,047	624	151	1	322	395	2	760	236		
1960-61	7,541	486	22,899	1,996	1,769	555	18	879	2,132	27	3,792	174		
1961-62	3,958	409	17,437	1,864	1,028	377	70	906	986	5	3,709	139		
1962-63	2,744	360	12,339	1,710	1,672	738	79	1,273	1,172	16	5,787	155		
1963-64	2,998	320	21,243	1,980	1,585	657	24	1,109	731	14	1,101	162		
1964-65	5,245	404	24,027	1,777	1,366	617	28	2,733	1,010	235	9,522	161		
1965-66	2,883	591	22,677	2,312	2,276	1,334	97	2,692	2,988	27	2,928	256		
1966-67	4,603	548	20,471	2,256	1,375	1,789	70	2,183	3,445	48	11,941	205		
1967-68	2,488	519	17,565	1,536	1,337	1,567	163	1,492	1,161	8	1,758	163		
1968-69	4,680	492	19,220	1,643	2,706	1,627	87	1,958	1,242	10	1,587	108		
1969-70	3,508	564	29,590	1,908	3,382	1,729	218	2,797	804	34	1,035	218		
1970-71	3,766	457	22,484	1,085	1,746	1,659	37	865	805	8	1,623	210		
1971-72	3,318	665	24,362	1,882	3,659	1,963	47	2,327	215	6	303	175		
1972-73	3,180	610	16,883	1,626	5,346	1,856	30	1,496	403	0	1,132	305		
1973-74	3,757	595	38,117	1,777	6,642	1,320	24	1,924	753	6	2,583	113		
1974-75	2,494	533	37,751	2,294	5,137	1,947	15	1,513	1,096	2	6,121	168		
1975-76	409	202	29,309	2,351	4,715	1,862	0	1,997	1,073	91	2,397	249		
1976-77	2,761	721	28,416	2,339	7,121	2,319	0	2,174	675	6	6,278	257	64	1
1977-78	3,075	594	50,406	3,428	7,355	2,421	39	2,397	548	43	2,670	271	34	1
1978-79	2,186	596	39,781	3,107	9,576	3,245	73	3,343	1,268	142	3,529	495	43	2
1979-80	4,130	672	35,946	3,860	10,946	3,170	45	2,908	1,071	76	4,385	831	48	6
1980-81	4,071	592	47,892	3,974	10,181	1,687	0	1,793	1,233	65	3,314	863	31	25
1981-82	3,761	571	51,941	4,362	12,362	1,722	0	2,346	1,148	23	1,843	546	45	39
1982-83	2,663	450	42,929	3,622	8,511	1,164	3	2,320	1,215	19	8,554	435	25	72
1983-84	2,240	426	41,162	3,172	6,042	1,041	5	2,003	962	10	7,292	422	48	157
1984-85	3,281	543	43,466	3,404	7,797	1,091	6	2,435	1,105	12	9,661	882	31	263

* Figures for beaver and bear are not true export statistics. Figures for beaver represent the actual harvest tally. Figures for bear are those of bear hunted up to and including 1964, after 1964 they represent calculated bear kill from hunter and trapper reports. Coyote figures are from carcass collection sheets.

TABLE X
NUMBER OF SMALL GAME HUNTERS, 1979-80 TO 1984-85

	1979- 1980	1980- 1981	1981- 1982	1982- 1983	1983- 1984	1984- 1985
Rabbits	28,376	23,928	26,061	28,463	27,959	30,531
Grouse	23,526	21,701	21,529	22,328	22,237	23,513*
Wild Pheasants	5,745	5,742	5,430	5,028	6,593	7,876
Preserve Pheasants	625	612	517	632	591	155
Total Pheasants	6,370	6,354	5,947	5,660	7,184	8,031
Hungarian Partridge	860	883	702	878	722	722*
Woodcock	2,267	2,107	1,515	1,829	1,806	2,289
Snipe	1,915	1,767	1,256	1,126	1,739	2,018
Total Upland Game	31,690	28,801	29,843	29,781	29,618	36,278
Black Ducks	10,111	10,027	9,863	10,486	11,654	13,493
Sea Ducks	5,001	4,358	4,352	4,435	4,789	5,625
Other Ducks	7,176	6,153	5,895	6,722	8,041	8,596
Geese	5,164	5,036	4,631	4,338	5,871	5,834
Total Waterfowl	11,904	11,961	11,516	11,965	12,873	14,739

* Due to changing "Huns" to "Hungarian Partridge" on the survey card hunters reported killing 35,269 whereas previously under "Huns" it was about 1,500 each year. Therefore, "ruffed grouse" figures may be a low estimate and figure used for huns was assumed to be about the same as last year.

TABLE XI
SMALL GAME HARVEST, 1979-80 TO 1984-85

	1979- 1980	1980- 1981	1981- 1982	1982- 1983	1983- 1984	1984- 1985
Rabbits	532,184	323,336	379,862	547,566	508,124	421,388
Grouse	77,378	76,274	65,514	83,331	85,935	97,427
Wild Pheasants	11,490	13,278	10,822	10,126	14,171	16,335
Preserve Pheasants	2,188	2,446	1,773	3,973	1,805	1,048
Total Pheasants	13,678	15,724	12,595	14,099	15,976	17,383
Hungarian Partridge	1,641	2,004	1,071	1,548	1,083	1,083*
Woodcock	5,823	5,537	3,360	3,094	2,952	4,035
Snipe	3,478	6,351	2,216	2,673	3,773	5,199
Total Upland Game	634,182	429,226	464,618	652,311	617,843	546,515
Black Ducks	41,694	60,454	41,711	47,327	71,911	75,753
Sea Ducks	27,941	28,533	20,608	33,314	57,456	34,388
Other Ducks	26,256	34,732	18,403	34,506	52,763	64,502
Geese	10,002	8,542	3,693	5,051	9,712	12,554
Total Waterfowl	105,893	132,243	84,415	120,198	191,842	187,197

* Due to changing "Huns" to "Hungarian Partridge" on the survey card hunters reported killing 35,269 whereas previously under "Huns" it was about 1,500 each year. Therefore, "ruffed grouse" figures may be a low estimate and figure used for huns was assumed to be about the same as last year.

TABLE XIV
LANDS RECONVEYED TO THE CROWN, 1984-85

There were 39 reconveyances of land to the Crown located by acreage as follows:

COUNTY	ACRES	HECTARES
Annapolis	0	0
Antigonish	0	0
Cape Breton	100	40
Colchester	0	0
Cumberland	611	247
Digby	120	49
Guysborough	53	21
Halifax	268	108
Hants	40	16
Inverness	188	76
Kings	0	0
Lunenburg	1	1
Pictou	200	81
Queens	52	21
Richmond	2	1
Shelburne	889	360
Victoria	0	0
Yarmouth	603	244
TOTAL	3,127	1,265

TABLE XV

LANDS RECONVEYED TO THE CROWN BY PURPOSE: 1984-85

PURPOSE	ACRES	HECTARES
Timber Reserve	1,588	643
Recreation & Park Reserve	1,478	598
Right of Way	28	11
Building	33	13
TOTAL	<u>3,127</u>	<u>1,265</u>
Expropriation	569	230
Transfer of Administration & Control	526	213

TABLE XVI
LOCATION OF CROWN LAND AS OF
MARCH 31, 1985

<u>COUNTIES</u>	<u>ACRES</u>	<u>HECTARES</u>
Annapolis	110,090	44 552
Antigonish	48,682	19 689
Cape Breton	119,735	48 455
Colchester	125,682	50 862
Cumberland	153,165	61 984
Digby	184,681	74 738
Guysborough	498,964	201 924
Halifax	460,809	186 483
Hants	93,169	37 704
Inverness	302,976	122 610
Kings	78,588	31 803
Lunenburg	91,543	37 046
Pictou	102,424	41 450
Queens	143,060	57 894
Richmond	96,852	39 195
Shelburne	258,838	104 748
Victoria	336,564	136 203
Yarmouth	269,717	109 151
TOTAL	<u><u>3,475,539</u></u>	<u><u>1 406 491</u></u>

TABLE XVII
NUMBER OF FOREST MANAGEMENT PLANS
SMALL INDIVIDUAL WOODLOTS, BY SUBDIVISION, 1984-85

Subdivision	Applications			Completed and Signed	
	Appl. On File	Being Processed	Completed and Signed	Acres	Hectares
Cape Breton North	40	15	270	49,400	20 000.0
Cape Breton South	35	10	323	46,046	18 642.0
Eastern	85	20	558	119,468	48 367.5
North Central	47	48	303	65,014	26 321.5
South Central	17	7	339	70,933	28 718.0
Valley	30	31	419	57,581	23 312.0
South Shore	29	10	425	74,767	30 270.1
Western	2	0	251	45,982	18 616.0
TOTAL	285	141	2,888	529,191	214 247.1

Many former individual plan holders have transferred to Group Ventures, particularly the six new Group Ventures that commenced operations in 1984/85.

TABLE XVIII
SUMMARY OF FOREST MANAGEMENT ACTIVITIES ON PRIVATE LAND (INDIVIDUALS), 1984-85

Category	50-5,000 Acres		5,000 Acres Plus		Pulp & Paper Co.		Total	
	Unit	Assistance*	Unit	Assistance**	Unit	Assistance*	Unit	Assistance*
Management Plans	450	\$ 470,289.24	N/A	\$ 940.32	N/A	N/A	450	\$ 471,229.56
Access Roads (built & under construction)	86.7 miles (138.2 km)	445,608.88	N/A	N/A	N/A	N/A	86.7 miles (138.2 km)	445,608.88
Bridges	147.9 feet 45.1 m)	23,216.65	N/A	N/A	N/A	N/A	147.9 feet (45.1 m)	23,216.65
Boundaries	330.0 miles (528.1 km)	147,627.81	N/A	N/A	N/A	N/A	330.0 (528.1 km)	147,627.81
Fire Ponds	96	19,176.00	N/A	N/A	N/A	N/A	96	19,176.00
Silviculture	13,879.7 acres (5 619.3 ha)	1,924,634.52	2,485.6 ac. (1 006.3 ha)	313,703.38	24,572.3 ac. (9 948.3 ha)	857,937.07	40,937.4 ac (16 573.9 ha)	3,096,274.80
TOTAL	---	\$3,030,553.10	---	\$314,643.70	---	\$857,937.07	---	\$4,203,133.70

* Assistance paid by Canada as recommended by the Province.

** Group Ventures not included.

TABLE XIX
GROUP FORESTRY MANAGEMENT ON PRIVATE LAND, 1984-85
PROGRESS REPORT SUMMARY

Group Venture	Operating Claimed (\$)*	Share-holders (No.)	Total No. of Mgmt. Plans	Total Area Under Mgmt. Acres	Road Construction Miles	Ponds (No.)	Boundaries Miles (km)	Silviculture Acres	Forest Improvement Claimed (\$)**	Volume of Wood Sold m ³ (stacked) (Cords)	Mgmt. Fee Contribution to Operating (\$)
West Pictou	\$ 74,257	136	155	16,387 (6 632)	8.9 (14.3)	6	18.1 (29.1)	406.5 (164.5)	\$ 132,662	30 483 (8,383)	\$16,890
North Nova	59,464	80	93	22,000 (8 903)	5.8 (9.3)	1	2.8 (4.5)	485.5 (196.5)	103,996	7 900 (2,173)	15,237
Baddeck	73,811	144	103	15,610 (6 317)	11.4 (18.4)	-	15.5 (25.0)	431.7 (174.7)	142,326	11 500 (3,163)	7,971
La Force	66,566	94	111	6,735 (2 726)	3.9 (6.3)	-	21.4 (34.5)	158.1 (64.0)	90,974	6 038 (1,660)	5,613
North Mountain	74,294	73	87	7,622 (3 085)	1.1 (1.8)	2	1.8 (2.9)	337.0 (136.4)	70,148	6 578 (1,809)	2,433
Sissiboo	64,959	86	103	13,733 (5 558)	7.8 (12.6)	6	30.4 (48.9)	392.9 (159.0)	164,268	9 580 (2,635)	9,169
Conform	67,863	92	117	19,148 (7 749)	33.5 (53.9)	7	7.2 (11.6)	900.9 (364.6)	266,549	42 703 (11,743)	19,697
Albion	68,133	62	51	14,042 (5 683)	21.3 (34.3)	1	19.0 (30.6)	713.1 (288.6)	186,613	14 475 (3,981)	11,679
SUBTOTAL	\$549,348	767	820	115,277 (46 653)	93.7 (150.9)	23	116.2 (187.1)	3,825.7 (1 548.3)	\$1,157,556	129 257 (35,547)	\$58,689
Coastal	61,193	48	16	1,800 (728)	1.3 (2.1)	-	-	16.8 (6.8)	5,439	1 101 (303)	522
Lunenburg	47,292	31	35	3,694 (1 495)	4 (6.6)	-	3.9 (6.3)	6.7 (2.7)	8,022	205 (56)	113
East Guysborough	46,464	12	12	1,800 (728)	-	-	-	-	-	-	-
Forchu	52,637	29	21	3,267 (1 322)	5 (0.8)	-	7 (1.1)	122.3 (49.5)	11,600	152 (42)	74
North Colchester	38,849	43	17	2,231 (943)	-	-	-	7.7 (3.1)	2,026	493 (136)	441
North Inverness	46,025	33	22	2,735 (1 107)	-	-	1.2 (1.9)	-	940	-	-
SUBTOTAL	\$382,459	196	123	15,624 (6 322)	2.2 (3.5)	-	5.8 (9.3)	153.5 (62.1)	28,097	1 951 (537)	1,150
TOTAL	\$931,807	963	943	130,904 (52 975)	95.9 (154.4)	23	122.0 (196.4)	3,979.2 (1 610.4)	\$1,185,653	131 208 (36,084)	\$59,839

*Funded by Lands and Forests

**Funded by Canadian Forestry Service

TABLE XX
SUMMARY OF FOREST FIRES BY CAUSE AND EXTENT, 1984

Cause	No. of Fires	Percentage of Total Fires	AREA		Percentage of Total Area
			Acres	Hectares	
Smoking	88	19.5	186.8	75.6	12.6
Camp Fire	17	3.8	141.6	57.3	9.6
Incendiary	85	18.9	531.3	215.0	35.9
Chimney	0	0.0	0.0	0.0	0.0
Explosives	1	0.2	2.0	0.8	0.1
Power Saw	0	0.0	0.0	0.0	0.0
Slash (per)	29	6.4	94.6	38.3	6.4
Slash (N. per)	14	3.1	13.1	5.3	0.9
Land Clear	22	4.9	47.7	19.3	3.2
Burning debris	66	14.6	252.5	102.2	17.1
Burn rt. way	6	1.3	14.1	5.7	1.0
Locomotive sprk.	12	2.7	4.7	1.9	0.3
Other eng. sprk.	3	0.7	0.2	0.1	0.1
Miscellaneous	24	5.3	20.5	8.3	1.4
Unknown	69	15.3	108.7	44.0	7.4
Lightning	15	3.3	61.0	24.7	4.1
Total	451	100.0	1478.8	598.5	100.0

TABLE XXI
NUMBER AND AREA OF FOREST FIRES
BY MONTH OF OCCURRENCE, 1984

Month	No. of Fires	AREA		Percentage of Total Fires	Percentage of Total Area
		Acres	Hectares		
January	0	0.0	0.0	0.0	0.0
February	1	19.8	8.0	0.2	1.3
March	25	84.8	34.3	5.6	5.7
April	81	790.5	319.9	18.0	53.4
May	98	306.2	123.9	21.7	20.7
June	54	67.5	27.3	12.0	4.6
July	52	20.0	8.3	11.5	1.4
August	61	63.0	25.5	13.5	4.3
September	29	18.8	7.6	6.4	1.3
October	43	103.0	41.7	9.5	7.0
November	7	5.2	2.1	1.6	0.3
December	0	0.0	0	0.0	0.0
	451	1478.8	598.5	100.0	100.0

TABLE XXII
SUMMARY OF HUNTING AND NON-HUNTING ACCIDENTS
AND RELATED STATISTICS, 1984

County	Injury Hunting Accident	Non- Hunting Accident	Fatal	Total By County
Annapolis	-	-	-	-
Antigonish	-	-	-	-
Cape Breton	-	-	-	-
Cumberland	1	-	-	1
Colchester	-	1	-	1
Digby	1	-	-	1
Guysborough	1	-	-	1
Halifax	2	-	-	2
Hants	1	-	-	1
Inverness	1	-	-	1
Kings	-	-	-	-
Lunenburg	1	-	-	1
Pictou	2	-	-	2
Queens	-	-	-	-
Richmond	-	-	-	-
Shelburne	-	-	-	-
Victoria	-	-	-	-
Yarmouth	1	-	-	1
TOTAL	11	1	NIL	12

GAME BEING HUNTED TYPE OF WEAPON INVOLVED

Moose	-	Furbearers	-	Shotgun	5	Muzzle loader	-
Deer	4	Bear	-	Rifle	5	Bow	-
Rabbits	5	Unknown	-	22 Cal.	2		
Birds	2	Non-Hunting-1					

CAUSES OF ACCIDENTS

Shooter stumbled and fell	2	Victim moved in line of fire	-
Victim mistaken for game	-	Weapon fell from insecure	
Trigger caught on object	1	place	1
Unintentional discharge	5	Victim covered by shooter	
Horseplay with firearm	-	swinging on game	-
Clubbing cover or game	-	Crossing fence or obstacle	
Intentional discharge	-	with loaded weapon	1
Unloading weapon	-	Removing weapon or	
Defective weapon	-	placing in vehicle	-
Loading weapon	-	Riding in vehicle with	
Victim out of sight of		loaded firearm	1
shooter	1		

COLOUR OF CLOTHING WORN BY VICTIM

White	-	Blue	-	Yellow	-
Red	-	Dark	-	Orange fatal	-
Green	-	Other	-	Orange injury	12

TIME OF DAY ACCIDENT OCCURRED

6:30 - 8:00 a.m.	-	12:00 - 4:00 p.m.	5
8:00 - 10:00 a.m.	1	4:00 - 5:00 p.m.	5
10:00 - 12:00 noon	1	5:00 p.m. - Dusk	-

COVER TYPE

Dense	3
Light	2
Open	6
Unknown	1

VISIBILITY

Clear	9
Poor	1
Overcast	2
Dark	-
Unknown	-

VISION		ACCIDENTAL SELF-INFLICTED	
Wears glasses	2	Fatal	-
Colour blind	-	Injury	8
Unknown	-	TOTAL	8

AGE CLASS OF ACCIDENTS

	Shooter	Victim
Unknown	-	-
10-15	-	-
16-20	5	-
21-25	2	1
26-30	-	1
31-35	3	1
36-40	-	-
41-45	-	1
46-50	1	-
51 +	1	-

CHARGES LAID AS
RESULTS OF ACCIDENTS

Lands & Forests Act	1
Criminal Code	-
# Liquor Involved	-

MUZZLE TO WOUND
DISTANCE (YARDS)

0- 10:	10
11- 50:	2
51-100:	-
Over 100:	-
Unknown:	-

HUNTING EXPERIENCE OF SHOOTER

1 Year:	3	4 Years:	2	Over 10:	-
2 Years:	-	5 Years:	-	Unknown:	7
3 Years:	-	Over 5:	-		

HUNTER SAFETY COURSES

First time firearm hunters	6,219	
Other firearm hunters	2,819	
Bowhunters	243	
TOTAL		9,281
Failures: Firearm	573	
Bowhunter	1	
TOTAL		574

COURSE GRADUATES INVOLVED IN ACCIDENTS

Firearm Course	0
Bowhunter Course	0
TOTAL	0

****NUMBER OF HUNTERS & FISHERMEN, 1983**

Big game	79,523	Estimated rabbit	
Small game	37,077	hunters	27,959
Moose	-	Bear trapping	790
Fishing	82,303	Furbearers	3,929
Senior citizen big		Senior citizen	
and small game	9,565	fishing	5,000
		TOTAL	246,146

**** PROSECUTIONS, 1983**

Total prosecutions	455
Jacking, uncased gun and	
shining light prosecutions	90
Warmings	897

OTHER STATISTICS RELATED TO GAME:
SEASONS & LICENCE FEES, 1984

- Deer:** October 26 — December 1 all counties
Bag limit - 1 of either sex
License Fees: Resident - \$15.00; Non-resident - \$75.00
Resident senior citizen - Free
- Bear:** Trapping - September 15 - December 15 (Residents ONLY - License Free)
Hunting - October 26 - December 1 (License fees: Resident - \$15.00; Non-resident - \$75.00)
- Rabbits:** November 16 - February 15 (Use of 22 Cal. weapon from December 3 ONLY)
Bag limit - None
No license required for residents.
Small game license for non-resident - \$35.00
- Moose:** No Moose Season in 1984.
- Pheasant, Hungarian Partridge and Grouse:**
Pheasant & Hungarian partridge in Annapolis, Kings, Hants & Lunenburg - November 1 to December 15.
Remainder of province October 1 to December 15.
Grouse, October 1 to December 15.
Bag Limits - Pheasants - 2 cocks per day, after first day no more than 4 cock birds. Hungarian partridge and grouse - 5 per day, no more than 10 after first day.
License fees: Resident - \$10.00; Non-resident - \$35.00; Resident senior citizen - Free.
- Furbearers:** Mink, muskrat, otter, beaver - November 1 to January 15, 1985. Fox, bobcat, weasel, red squirrel, skunk, fisher, raccoons - November 1 to last day of February 1985. Residents ONLY.
License fee: \$10.00. NO snaring until December 15.
See Trappers Summary for bag limits.
- Fish and Migratory Birds**
Regulations and bag limits controlled by federal government. Provincial Salmon License: Resident - \$10.00; Non-resident - \$15.00.

Fishing License: Resident - \$4.00; Non-resident - \$15.00.

Federal Migratory Bird License, \$3.50. Provincial Small Game License also required.

TABLE XXIII
SUMMARY OF OFFENCES AND CONVICTIONS
BY STATUTE AND COUNTY, 1984

A—Offences known or reported; B—Number of persons charged; C—Warnings issued

DISTRICT		L&F ACT PART I	L&F ACT PART II	L&F ACT PART III	PARKS ACT	BEACHES P & P ACT	SNOW VEHICLES ACT	MBC ACT	TOTALS
Annapolis	A	-	-	90	-	-	-	-	90
	B	-	-	7	-	-	-	-	7
	C	-	-	2	-	-	-	-	2
Antigonish	A	6	-	47	9	3	-	6	71
	B	-	-	6	-	-	-	-	6
	C	-	-	7	9	-	-	-	16
C.B./Sydney	A	5	41	676	13	13	-	42	790
	B	-	4	85	5	-	-	1	95
	C	-	-	43	1	-	-	-	44
Colchester	A	-	5	183	-	-	-	-	188
	B	-	-	16	-	-	-	-	16
	C	-	-	12	-	-	-	-	12
Cumberland East	A	-	1	93	-	-	-	-	94
	B	-	1	17	-	-	-	-	18
	C	-	-	5	-	-	-	-	5
Cumberland West	A	-	-	59	6	12	-	1	78
	B	-	-	7	-	-	-	-	7
	C	-	-	2	-	-	-	-	2
Digby	A	-	21	118	6	-	-	1	146
	B	-	-	21	-	-	-	-	21
	C	-	1	10	-	-	-	-	11
Guysborough	A	8	3	58	2	2	-	8	81
	B	-	-	12	-	-	-	-	12
	C	2	1	12	-	-	-	-	15
Halifax East	A	7	10	192	16	26	-	18	269
	B	1	-	27	9	-	-	3	40
	C	4	3	39	7	26	-	-	79
Halifax West	A	1	45	114	32	21	-	7	220
	B	-	-	58	5	-	-	-	63
	C	-	2	48	31	-	-	-	81
Hants	A	-	9	182	5	1	-	-	197
	B	-	1	61	3	-	-	-	65
	C	-	4	98	-	-	-	-	102
Inverness	A	5	12	141	3	2	-	-	163
	B	-	-	20	-	-	-	-	20
	C	3	12	87	4	2	-	-	108
Kings	A	3	13	127	6	5	-	2	156
	B	-	2	23	-	-	-	-	25
	C	3	6	72	5	4	-	-	90

DEPARTMENT OF LANDS AND FORESTS

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TABLE XXIII (continued)

A—Offences known or reported;			B—Number of persons charged;				C—Warnings issued		
DISTRICT	L&F ACT		L&F ACT	L&F ACT	PARKS	BEACHES	SNOW	MBC	TOTALS
	PART I	PART II	PART III	ACT	P & P ACT	VEHICLES ACT	ACT		
Lunenburg	A	9	76	465	70	28	-	7	655
	B	-	3	71	29	-	-	-	103
	C	-	6	52	2	2	-	5	67
Pictou	A	2	18	552	16	-	-	5	593
	B	1	11	29	21	-	-	2	64
	C	-	4	8	6	-	-	-	18
Queens	A	1	12	65	-	6	-	2	86
	B	-	-	11	-	-	-	-	11
	C	-	8	17	-	-	-	-	25
Richmond	A	8	12	76	3	5	2	3	109
	B	-	-	19	-	-	-	-	19
	C	-	4	10	1	-	-	-	15
Shelburne	A	2	2	196	10	-	-	19	229
	B	-	-	27	-	-	-	3	30
	C	-	3	204	10	-	-	-	217
St. Marys	A	-	-	133	-	2	-	4	137
	B	-	-	25	-	-	-	-	25
	C	-	-	34	-	1	-	1	35
Victoria	A	5	8	259	-	2	-	3	277
	B	-	-	40	-	-	-	3	43
	C	2	5	119	-	1	-	-	127
Yarmouth	A	3	21	144	7	9	-	4	188
	B	-	-	21	-	-	-	-	21
	C	3	5	11	5	4	-	-	28
TOTAL	A	65	309	3,970	204	135	2	132	4,817
	B	2	22	603	72	-	-	12	711
	C	17	64	892	81	39	-	6	1,099

For year ending December 31, 1983:

Number of prosecutions for jacking.....	67
Number of prosecutions for uncased guns.....	44
Number of prosecutions for shining lights.....	22
Number of complaints of jacking (Lands & Forests Offices only).....	676